Full wwPDB X-ray Structure Validation Report (i)

Nov 17, 2025 – 08:35 PM JST

PDB ID	:	9KPX / pdb_00009kpx
Title	:	UDP-glycosyltransferase TsUGT1 with UDP and 3-Glc-30-S-Glc-GA
Authors	:	Feng, X.; Sun, Q.; Meng, L.
Deposited on	:	2024-11-24
Resolution	:	3.30 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:

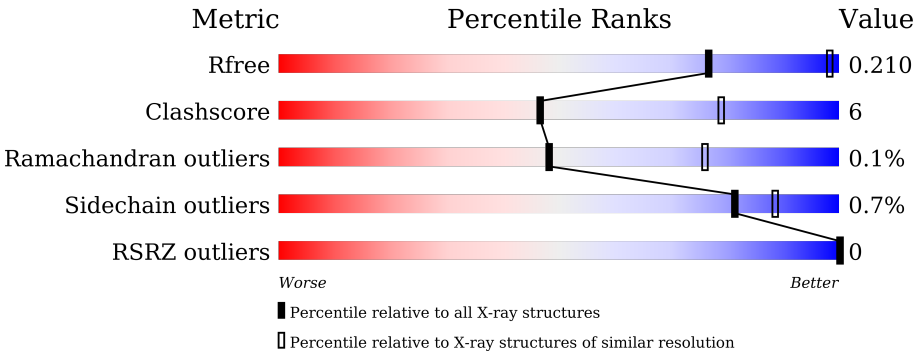
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.46

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.30 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	1085 (3.32-3.28)
Clashscore	180529	1128 (3.32-3.28)
Ramachandran outliers	177936	1125 (3.32-3.28)
Sidechain outliers	177891	1124 (3.32-3.28)
RSRZ outliers	164620	1085 (3.32-3.28)

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	471	84% 16%
1	B	471	83% 16%
1	C	471	85% 15%
1	D	471	87% 13%

2 Entry composition

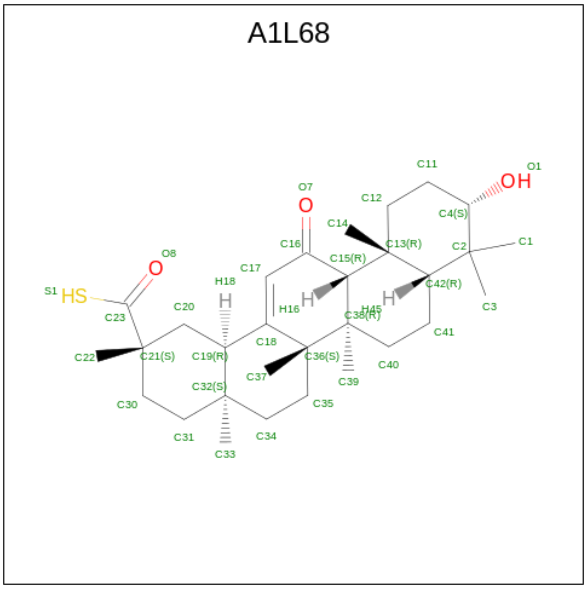
There are 4 unique types of molecules in this entry. The entry contains 15284 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Glycosyltransferase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	471	Total	C	N	O	S	0	0	0
			3740	2411	621	690	18			
1	B	471	Total	C	N	O	S	0	0	0
			3740	2411	621	690	18			
1	C	471	Total	C	N	O	S	0	0	0
			3740	2411	621	690	18			
1	D	471	Total	C	N	O	S	0	0	0
			3740	2411	621	690	18			

- Molecule 2 is (2 {S},4 {a} {S},6 {a} {R},6 {a} {S},6 {b} {R},8 {a} {R},10 {S},12 {a} {R} ,14 {b} {R})-2,4 {a},6 {a},6 {b},9,9,12 {a}-heptamethyl-10-oxidanyl-13-oxidanylidene-3,4 ,5,6,6 {a},7,8,8 {a},10,11,12,14 {b}-dodecahydro-1 {H}-picene-2-carbothioic S-acid (CCD ID: A1L68) (formula: $C_{30}H_{46}O_3S$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	C	O	S	0	0
			34	30	3	1		

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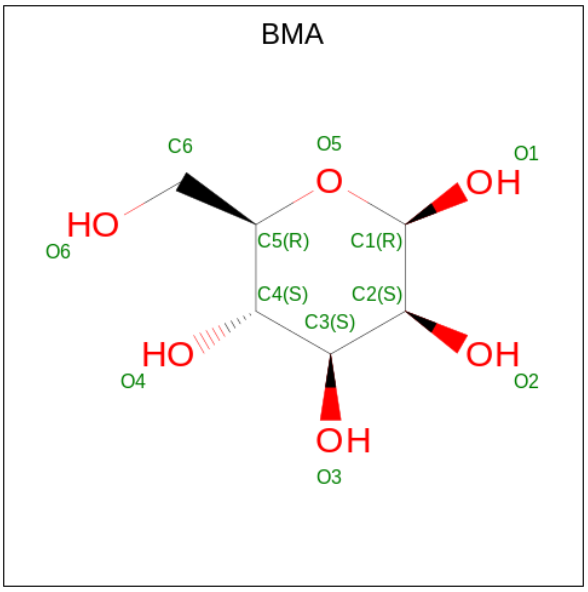
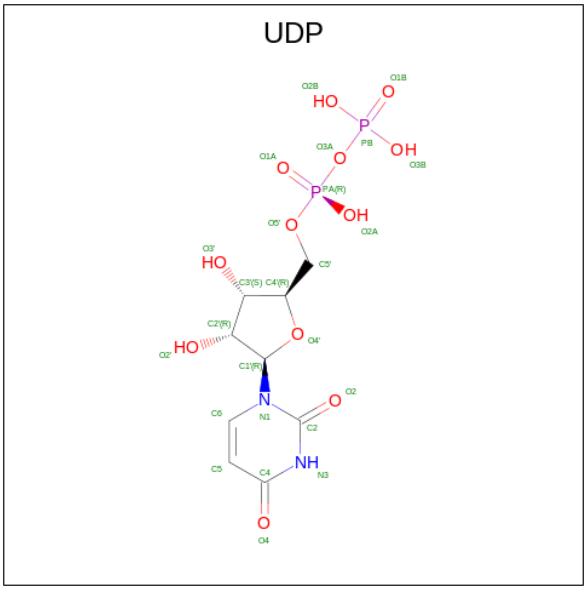
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	B	1	Total C O S 34 30 3 1	0	0
2	C	1	Total C O S 34 30 3 1	0	0
2	D	1	Total C O S 34 30 3 1	0	0

- Molecule 3 is beta-D-mannopyranose (CCD ID: BMA) (formula: $C_6H_{12}O_6$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C O 11 6 5	0	0
3	A	1	Total C O 11 6 5	0	0
3	B	1	Total C O 11 6 5	0	0
3	B	1	Total C O 11 6 5	0	0
3	C	1	Total C O 11 6 5	0	0
3	C	1	Total C O 11 6 5	0	0
3	D	1	Total C O 11 6 5	0	0
3	D	1	Total C O 11 6 5	0	0

- Molecule 4 is URIDINE-5'-DIPHOSPHATE (CCD ID: UDP) (formula: $C_9H_{14}N_2O_{12}P_2$).



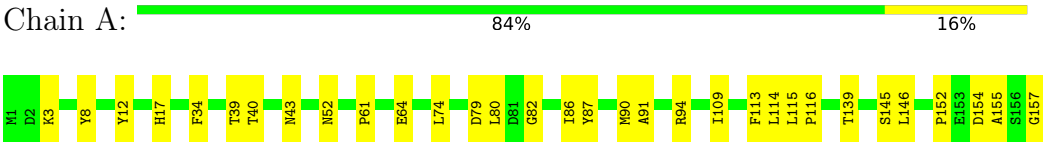
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	A	1	Total	C	N	O	P	0	0
			25	9	2	12	2		
4	B	1	Total	C	N	O	P	0	0
			25	9	2	12	2		
4	C	1	Total	C	N	O	P	0	0
			25	9	2	12	2		
4	D	1	Total	C	N	O	P	0	0
			25	9	2	12	2		

3 Residue-property plots (i)

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

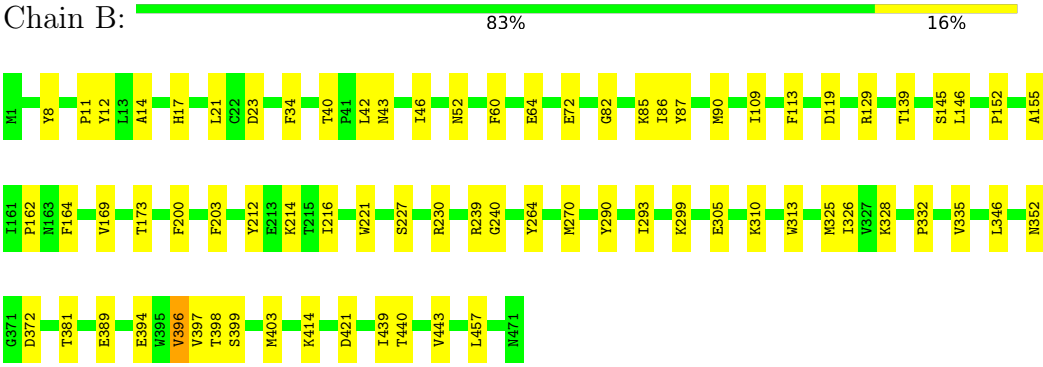
- Molecule 1: Glycosyltransferase

Chain A:



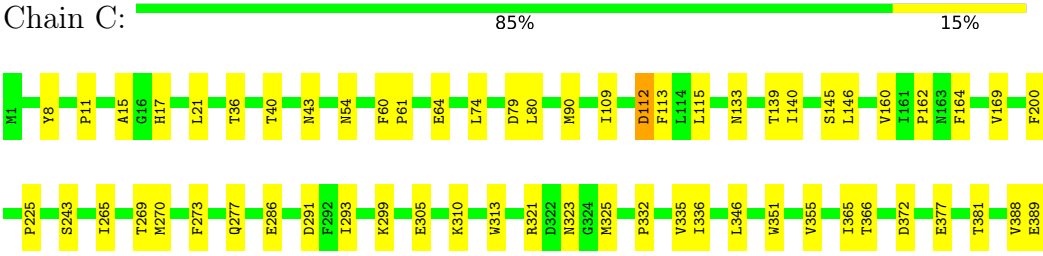
- Molecule 1: Glycosyltransferase

Chain B:



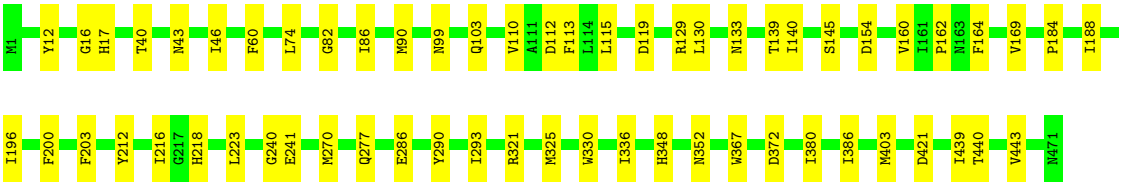
- Molecule 1: Glycosyltransferase

Chain C:



• Molecule 1: Glycosyltransferase

Chain D:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	50.87Å 89.21Å 113.77Å 94.36° 97.76° 104.72°	Depositor
Resolution (Å)	28.24 – 3.30 28.24 – 3.30	Depositor EDS
% Data completeness (in resolution range)	48.1 (28.24-3.30) 48.0 (28.24-3.30)	Depositor EDS
R_{merge}	0.14	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.21 (at 3.31Å)	Xtriage
Refinement program	PHENIX (1.15.1_3469: ???)	Depositor
R, R_{free}	0.155 , 0.209 0.156 , 0.210	Depositor DCC
R_{free} test set	678 reflections (2.36%)	wwPDB-VP
Wilson B-factor (Å^2)	45.9	Xtriage
Anisotropy	0.041	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.29 , 23.5	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	15284	wwPDB-VP
Average B, all atoms (Å^2)	44.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.18% 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: A1L68, BMA, UDP

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	0.14	0/3835	0.30	0/5200
1	B	0.13	0/3835	0.30	0/5200
1	C	0.14	0/3835	0.31	0/5200
1	D	0.15	0/3835	0.30	0/5200
All	All	0.14	0/15340	0.30	0/20800

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	3740	0	3716	47	0
1	B	3740	0	3716	48	0
1	C	3740	0	3716	40	0
1	D	3740	0	3716	34	0
2	A	34	0	0	0	0
2	B	34	0	0	0	0
2	C	34	0	0	0	0
2	D	34	0	0	0	0
3	A	22	0	20	2	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	22	0	20	2	0
3	C	22	0	20	0	0
3	D	22	0	20	0	0
4	A	25	0	11	1	0
4	B	25	0	11	2	0
4	C	25	0	11	0	0
4	D	25	0	11	0	0
All	All	15284	0	14988	168	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 6.

All (168) 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:D:139:THR:HG21	1:D:372:ASP:HB2	1.62	0.82
1:C:139:THR:HG21	1:C:372:ASP:HB2	1.62	0.78
1:A:139:THR:HG21	1:A:372:ASP:HB2	1.67	0.77
1:B:139:THR:HG21	1:B:372:ASP:HB2	1.69	0.73
1:C:17:HIS:HE1	1:C:113:PHE:HE1	1.39	0.71
1:D:17:HIS:HE1	1:D:113:PHE:HE1	1.42	0.67
1:B:370:LEU:HB3	1:B:396:VAL:O	1.95	0.67
1:A:332:PRO:HB2	1:A:335:VAL:HB	1.77	0.66
1:C:286:GLU:OE1	1:C:321:ARG:NH2	2.31	0.63
1:B:227:SER:HA	1:B:239:ARG:HH22	1.62	0.63
1:B:160:VAL:HG22	1:B:169:VAL:HG22	1.81	0.62
1:B:46:ILE:HG21	1:B:240:GLY:HA2	1.81	0.62
1:B:17:HIS:HE1	1:B:113:PHE:HE1	1.47	0.62
1:B:230:ARG:HD2	1:B:239:ARG:HH21	1.64	0.62
1:D:160:VAL:HG22	1:D:169:VAL:HG22	1.81	0.62
1:A:145:SER:OG	1:A:162:PRO:O	2.18	0.60
1:C:243:SER:HB2	1:C:332:PRO:HD3	1.83	0.60
1:D:74:LEU:HD21	1:D:270:MET:HE3	1.85	0.58
1:B:14:ALA:HB1	3:B:503:BMA:H2	1.85	0.58
1:C:293:ILE:HG21	1:C:336:ILE:HD13	1.85	0.58
1:B:394:GLU:HG2	1:B:396:VAL:HG22	1.85	0.57
1:B:119:ASP:OD1	1:B:129:ARG:NH2	2.36	0.57
1:A:40:THR:OG1	1:A:43:ASN:ND2	2.35	0.57
1:B:11:PRO:HB3	1:B:21:LEU:HD23	1.87	0.56
1:A:381:THR:HG21	1:A:389:GLU:HG3	1.88	0.56
1:A:403:MET:SD	1:A:403:MET:N	2.76	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:270:MET:O	1:C:399:SER:OG	2.23	0.56
1:C:8:TYR:HB2	1:C:109:ILE:HD13	1.88	0.55
1:C:61:PRO:HB2	1:C:64:GLU:HB2	1.88	0.55
1:C:293:ILE:HD13	1:C:325:MET:HB2	1.88	0.55
1:C:160:VAL:HG22	1:C:169:VAL:HG22	1.89	0.54
1:D:293:ILE:HG21	1:D:336:ILE:HD13	1.89	0.54
1:A:160:VAL:HG22	1:A:169:VAL:HG22	1.89	0.54
1:A:253:TRP:HA	1:A:256:LYS:HE2	1.89	0.54
1:B:305:GLU:HB2	1:B:310:LYS:HG3	1.90	0.53
1:C:381:THR:HG21	1:C:389:GLU:HG3	1.91	0.53
1:A:430:ARG:O	1:A:434:GLN:NE2	2.36	0.52
1:B:152:PRO:HG2	1:B:155:ALA:HB2	1.91	0.52
1:D:40:THR:OG1	1:D:43:ASN:ND2	2.38	0.52
1:D:277:GLN:HB2	1:D:403:MET:HE1	1.92	0.52
1:B:293:ILE:HD13	1:B:325:MET:HB2	1.92	0.52
1:C:40:THR:HG21	1:C:60:PHE:HD1	1.74	0.52
1:B:403:MET:SD	1:B:403:MET:N	2.83	0.51
1:D:200:PHE:CZ	1:D:203:PHE:HB2	2.47	0.50
1:D:293:ILE:HD13	1:D:325:MET:HB2	1.92	0.50
1:B:145:SER:OG	1:B:162:PRO:O	2.29	0.50
1:C:273:PHE:CD1	1:C:277:GLN:HG2	2.47	0.49
1:A:8:TYR:HB2	1:A:109:ILE:HD13	1.95	0.49
1:B:87:TYR:CE1	3:B:502:BMA:H61	2.48	0.49
1:D:82:GLY:O	1:D:86:ILE:HG12	2.13	0.49
1:B:352:ASN:HB2	4:B:504:UDP:PA	2.52	0.49
1:B:8:TYR:HB2	1:B:109:ILE:HD13	1.95	0.49
1:D:90:MET:HE3	1:D:115:LEU:HD11	1.95	0.49
1:D:145:SER:OG	1:D:162:PRO:O	2.31	0.49
1:C:418:ARG:O	1:C:426:ALA:HB2	2.12	0.49
1:A:352:ASN:HB2	4:A:504:UDP:PA	2.53	0.49
1:B:397:VAL:HG13	1:B:398:THR:HG23	1.94	0.48
1:C:133:ASN:HD21	1:C:140:ILE:HD11	1.78	0.48
1:D:286:GLU:OE1	1:D:321:ARG:NH2	2.46	0.48
1:A:12:TYR:HA	1:A:90:MET:HE2	1.95	0.48
1:A:17:HIS:HE1	1:A:113:PHE:HE1	1.62	0.48
1:A:74:LEU:HD21	1:A:270:MET:HE3	1.95	0.48
1:A:270:MET:O	1:A:399:SER:OG	2.32	0.48
1:A:293:ILE:HG21	1:A:336:ILE:HD13	1.96	0.47
1:C:74:LEU:HD21	1:C:270:MET:HE3	1.96	0.47
1:A:61:PRO:HB2	1:A:64:GLU:HB2	1.96	0.47
1:C:365:ILE:HG13	1:C:419:LEU:HD12	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:196:ILE:HG23	1:A:223:LEU:HD12	1.96	0.47
1:B:82:GLY:O	1:B:86:ILE:HG12	2.15	0.47
1:C:40:THR:OG1	1:C:43:ASN:ND2	2.45	0.47
1:B:82:GLY:HA2	1:B:85:LYS:HD2	1.96	0.47
1:C:90:MET:HE3	1:C:115:LEU:HD21	1.97	0.47
1:C:265:ILE:HG23	1:C:346:LEU:HD23	1.97	0.47
1:C:200:PHE:CZ	1:C:203:PHE:HB2	2.50	0.47
1:B:270:MET:O	1:B:399:SER:OG	2.33	0.47
1:A:114:LEU:O	1:A:116:PRO:HD3	2.15	0.46
1:B:290:TYR:OH	1:B:421:ASP:OD1	2.18	0.46
1:C:388:VAL:HB	1:C:418:ARG:HH21	1.81	0.46
1:B:40:THR:OG1	1:B:43:ASN:ND2	2.38	0.46
1:D:46:ILE:HG21	1:D:240:GLY:HA2	1.98	0.46
1:C:403:MET:SD	1:C:403:MET:N	2.85	0.46
1:A:39:THR:OG1	1:A:40:THR:N	2.49	0.45
1:A:152:PRO:HG2	1:A:155:ALA:HB2	1.97	0.45
1:C:305:GLU:HB2	1:C:310:LYS:HG3	1.98	0.45
1:D:133:ASN:HD21	1:D:140:ILE:HD11	1.81	0.45
1:A:79:ASP:OD1	1:A:80:LEU:N	2.50	0.45
1:C:15:ALA:HB3	1:C:269:THR:HG21	1.98	0.45
1:D:12:TYR:HA	1:D:90:MET:HE2	1.98	0.45
1:B:440:THR:O	1:B:443:VAL:HG22	2.16	0.45
1:A:82:GLY:O	1:A:86:ILE:HG12	2.17	0.45
1:C:11:PRO:HB3	1:C:21:LEU:HD23	1.98	0.45
1:A:413:GLU:CD	1:B:414:LYS:HD2	2.42	0.45
1:C:332:PRO:HB2	1:C:335:VAL:HB	1.99	0.45
1:D:40:THR:HG21	1:D:60:PHE:HD1	1.82	0.45
1:A:146:LEU:HD23	1:A:146:LEU:HA	1.82	0.45
1:A:90:MET:HE3	1:A:115:LEU:HD21	1.98	0.45
1:B:214:LYS:HA	1:B:214:LYS:HD3	1.83	0.44
1:D:16:GLY:O	1:D:352:ASN:ND2	2.49	0.44
1:D:110:VAL:HG22	1:D:130:LEU:HB2	1.98	0.44
1:D:196:ILE:HG23	1:D:223:LEU:HD12	1.99	0.44
1:A:200:PHE:CZ	1:A:203:PHE:HB2	2.53	0.44
1:B:439:ILE:O	1:B:443:VAL:HG13	2.16	0.44
1:B:200:PHE:CZ	1:B:203:PHE:HB2	2.52	0.44
1:C:79:ASP:OD1	1:C:80:LEU:N	2.50	0.44
1:A:212:TYR:CD1	1:A:216:ILE:HD12	2.52	0.44
1:A:34:PHE:HA	1:A:52:ASN:HB3	1.99	0.44
1:A:87:TYR:CE2	3:A:502:BMA:H61	2.52	0.44
1:D:440:THR:O	1:D:443:VAL:HG22	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:225:PRO:HB3	1:C:355:VAL:HB	2.00	0.43
1:B:332:PRO:HB2	1:B:335:VAL:HB	2.00	0.43
1:D:119:ASP:OD1	1:D:129:ARG:NH2	2.51	0.43
1:D:212:TYR:CD1	1:D:216:ILE:HD12	2.52	0.43
1:B:12:TYR:HA	1:B:90:MET:HE2	2.00	0.43
1:C:36:THR:HA	1:C:54:ASN:O	2.18	0.43
1:B:34:PHE:HA	1:B:52:ASN:HB3	2.01	0.43
1:B:157:GLY:O	1:B:173:THR:HG23	2.17	0.43
1:B:227:SER:HA	1:B:239:ARG:NH2	2.31	0.43
1:A:293:ILE:HD13	1:A:325:MET:HB2	2.01	0.43
1:B:326:ILE:HG22	1:B:328:LYS:HG3	2.00	0.43
1:B:346:LEU:HA	1:B:365:ILE:HB	2.00	0.43
1:A:157:GLY:O	1:A:173:THR:HG23	2.18	0.43
1:C:145:SER:OG	1:C:162:PRO:O	2.35	0.43
1:A:298:GLU:OE1	1:A:298:GLU:N	2.45	0.43
1:B:46:ILE:HG21	1:B:240:GLY:CA	2.46	0.43
1:B:264:TYR:HD1	1:B:293:ILE:HB	1.84	0.43
1:D:290:TYR:OH	1:D:421:ASP:OD1	2.31	0.42
1:B:23:ASP:OD2	1:B:239:ARG:NH2	2.52	0.42
1:B:381:THR:HG21	1:B:389:GLU:HG3	2.01	0.42
1:D:348:HIS:HA	1:D:367:TRP:O	2.19	0.42
1:D:40:THR:HG1	1:D:43:ASN:HD22	1.62	0.42
1:B:42:LEU:HB3	1:B:72:GLU:OE1	2.20	0.42
1:C:366:THR:HB	1:C:377:GLU:HG3	2.01	0.42
1:A:432:ARG:HA	1:A:435:LYS:HD3	2.02	0.42
1:A:212:TYR:CE2	1:A:218:HIS:HB3	2.55	0.42
1:D:99:ASN:O	1:D:103:GLN:HG2	2.20	0.42
1:A:90:MET:HE3	1:A:115:LEU:HD11	2.02	0.42
1:A:200:PHE:CD1	1:A:225:PRO:HD3	2.54	0.42
1:C:221:TRP:CE2	1:C:457:LEU:HD13	2.55	0.42
1:B:40:THR:HG21	1:B:60:PHE:HD1	1.83	0.42
1:A:200:PHE:CE2	1:A:203:PHE:HB2	2.54	0.42
1:B:146:LEU:HD23	1:B:146:LEU:HA	1.87	0.41
1:D:17:HIS:ND1	1:D:112:ASP:OD2	2.46	0.41
1:A:87:TYR:HE2	3:A:502:BMA:H61	1.84	0.41
1:A:366:THR:HB	1:A:377:GLU:HG3	2.02	0.41
1:C:351:TRP:O	1:C:355:VAL:HG22	2.21	0.41
1:D:200:PHE:CE2	1:D:203:PHE:HB2	2.56	0.41
1:C:17:HIS:CE1	1:C:113:PHE:HE1	2.28	0.41
1:D:241:GLU:HB3	1:D:330:TRP:CG	2.55	0.41
1:A:348:HIS:HA	1:A:367:TRP:O	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:299:LYS:HE3	1:C:313:TRP:CD1	2.55	0.41
1:A:256:LYS:HE3	1:A:256:LYS:HB2	1.83	0.41
1:B:352:ASN:HB2	4:B:504:UDP:O5'	2.21	0.41
1:B:212:TYR:CD1	1:B:216:ILE:HD12	2.56	0.41
1:D:184:PRO:O	1:D:188:ILE:HG12	2.21	0.41
1:D:380:ILE:HG23	1:D:386:ILE:HG13	2.03	0.41
1:A:3:LYS:HE2	1:A:3:LYS:HB2	1.87	0.41
1:A:154:ASP:OD1	1:A:154:ASP:N	2.52	0.41
1:A:159:PHE:CE1	1:A:170:ILE:HB	2.55	0.41
1:A:267:PHE:CG	1:A:273:PHE:HE2	2.38	0.41
1:B:221:TRP:CE2	1:B:457:LEU:HD13	2.56	0.41
1:C:17:HIS:HB3	1:C:112:ASP:OD2	2.20	0.41
1:C:146:LEU:HD23	1:C:146:LEU:HA	1.87	0.41
1:C:291:ASP:HA	1:C:323:ASN:O	2.21	0.41
1:D:212:TYR:CE2	1:D:218:HIS:HB3	2.56	0.40
1:D:439:ILE:O	1:D:443:VAL:HG13	2.21	0.40
1:A:91:ALA:O	1:A:94:ARG:HB3	2.22	0.40
1:B:299:LYS:HE3	1:B:313:TRP:CD1	2.57	0.40
1:C:439:ILE:O	1:C:443:VAL:HG13	2.20	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	469/471 (100%)	459 (98%)	9 (2%)	1 (0%)	44 71
1	B	469/471 (100%)	456 (97%)	13 (3%)	0	100 100
1	C	469/471 (100%)	457 (97%)	12 (3%)	0	100 100
1	D	469/471 (100%)	459 (98%)	10 (2%)	0	100 100
All	All	1876/1884 (100%)	1831 (98%)	44 (2%)	1 (0%)	48 76

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	240	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	409/409 (100%)	405 (99%)	4 (1%)	73	84
1	B	409/409 (100%)	406 (99%)	3 (1%)	81	88
1	C	409/409 (100%)	406 (99%)	3 (1%)	81	88
1	D	409/409 (100%)	407 (100%)	2 (0%)	86	91
All	All	1636/1636 (100%)	1624 (99%)	12 (1%)	81	88

All (12) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	164	PHE
1	A	229	VAL
1	A	258	ARG
1	A	397	VAL
1	B	64	GLU
1	B	164	PHE
1	B	396	VAL
1	C	112	ASP
1	C	164	PHE
1	C	434	GLN
1	D	154	ASP
1	D	164	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (9) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	104	HIS
1	A	463	GLN

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Mol	Chain	Res	Type
1	B	56	HIS
1	B	333	GLN
1	C	166	GLN
1	C	463	GLN
1	D	56	HIS
1	D	323	ASN
1	D	442	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 oligosaccharides in this entry.

5.6 Ligand geometry

16 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
3	BMA	A	503	2	11,11,12	0.34	0	15,15,17	1.49	2 (13%)
3	BMA	D	503	2	11,11,12	0.33	0	15,15,17	1.44	2 (13%)
3	BMA	A	502	2	11,11,12	0.24	0	15,15,17	0.55	0
3	BMA	B	503	2	11,11,12	0.36	0	15,15,17	1.49	2 (13%)
4	UDP	D	504	-	24,26,26	0.38	0	37,40,40	0.73	2 (5%)
4	UDP	B	504	-	24,26,26	0.39	0	37,40,40	0.73	2 (5%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
3	BMA	C	503	2	11,11,12	0.38	0	15,15,17	1.44	2 (13%)
2	A1L68	D	501	3	37,38,38	0.50	0	66,67,67	4.04	13 (19%)
2	A1L68	B	501	3	37,38,38	0.53	0	66,67,67	4.05	16 (24%)
3	BMA	B	502	2	11,11,12	0.24	0	15,15,17	0.53	0
3	BMA	C	502	2	11,11,12	0.24	0	15,15,17	0.74	0
4	UDP	C	504	-	24,26,26	0.38	0	37,40,40	0.72	2 (5%)
3	BMA	D	502	2	11,11,12	0.22	0	15,15,17	0.53	0
2	A1L68	A	501	3	37,38,38	0.52	0	66,67,67	4.18	13 (19%)
2	A1L68	C	501	3	37,38,38	0.52	0	66,67,67	4.07	14 (21%)
4	UDP	A	504	-	24,26,26	0.37	0	37,40,40	0.73	2 (5%)

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	BMA	A	503	2	-	1/2/19/22	1/1/1/1
3	BMA	D	503	2	-	1/2/19/22	1/1/1/1
3	BMA	A	502	2	-	1/2/19/22	0/1/1/1
3	BMA	B	503	2	-	1/2/19/22	1/1/1/1
4	UDP	D	504	-	-	2/16/32/32	0/2/2/2
4	UDP	B	504	-	-	1/16/32/32	0/2/2/2
3	BMA	C	503	2	-	1/2/19/22	1/1/1/1
2	A1L68	D	501	3	-	1/3/100/100	0/5/5/5
2	A1L68	B	501	3	-	1/3/100/100	0/5/5/5
3	BMA	B	502	2	-	1/2/19/22	0/1/1/1
3	BMA	C	502	2	-	1/2/19/22	0/1/1/1
4	UDP	C	504	-	-	2/16/32/32	0/2/2/2
3	BMA	D	502	2	-	1/2/19/22	0/1/1/1
2	A1L68	A	501	3	-	1/3/100/100	0/5/5/5
2	A1L68	C	501	3	-	1/3/100/100	0/5/5/5
4	UDP	A	504	-	-	2/16/32/32	0/2/2/2

There are no bond length outliers.

All (72) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	501	A1L68	C12-C13-C15	26.14	136.53	108.19

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	501	A1L68	C12-C13-C15	26.04	136.41	108.19
2	C	501	A1L68	C12-C13-C15	25.88	136.24	108.19
2	D	501	A1L68	C12-C13-C15	25.82	136.18	108.19
2	A	501	A1L68	C14-C13-C12	-15.51	83.26	108.26
2	C	501	A1L68	C14-C13-C12	-14.25	85.30	108.26
2	D	501	A1L68	C14-C13-C12	-13.90	85.85	108.26
2	B	501	A1L68	C14-C13-C12	-13.82	85.99	108.26
2	A	501	A1L68	C14-C13-C15	-8.68	95.48	112.41
2	C	501	A1L68	C14-C13-C15	-8.32	96.18	112.41
2	D	501	A1L68	C14-C13-C15	-8.29	96.24	112.41
2	B	501	A1L68	C14-C13-C15	-8.25	96.31	112.41
2	A	501	A1L68	C21-C23-S1	5.21	120.37	115.15
2	D	501	A1L68	C21-C23-S1	5.19	120.34	115.15
2	B	501	A1L68	C21-C23-S1	5.14	120.30	115.15
2	D	501	A1L68	C41-C42-C2	-5.02	108.05	114.11
2	C	501	A1L68	C21-C23-S1	4.95	120.10	115.15
2	C	501	A1L68	C41-C42-C2	-4.90	108.20	114.11
2	B	501	A1L68	C41-C42-C2	-4.77	108.34	114.11
2	A	501	A1L68	C41-C42-C2	-4.58	108.58	114.11
3	A	503	BMA	C1-O5-C5	3.75	117.27	112.19
2	A	501	A1L68	C15-C13-C42	3.73	110.82	106.47
3	D	503	BMA	C1-O5-C5	3.67	117.16	112.19
3	C	503	BMA	C1-O5-C5	3.58	117.05	112.19
3	B	503	BMA	C1-O5-C5	3.51	116.95	112.19
2	C	501	A1L68	C15-C13-C42	3.20	110.20	106.47
2	A	501	A1L68	C11-C12-C13	3.12	118.13	112.78
2	C	501	A1L68	C11-C12-C13	3.11	118.12	112.78
2	D	501	A1L68	C15-C13-C42	3.11	110.09	106.47
3	B	503	BMA	C3-C4-C5	-3.10	104.70	110.24
2	B	501	A1L68	C15-C13-C42	3.09	110.07	106.47
3	A	503	BMA	C3-C4-C5	-3.05	104.81	110.24
3	D	503	BMA	C3-C4-C5	-2.92	105.03	110.24
2	A	501	A1L68	C38-C15-C13	2.86	120.19	118.10
2	B	501	A1L68	C11-C12-C13	2.86	117.69	112.78
3	C	503	BMA	C3-C4-C5	-2.82	105.22	110.24
2	D	501	A1L68	C11-C12-C13	2.79	117.56	112.78
2	D	501	A1L68	C12-C11-C4	2.59	115.42	111.51
4	B	504	UDP	PA-O3A-PB	-2.55	124.08	132.83
2	B	501	A1L68	C12-C11-C4	2.49	115.27	111.51
4	A	504	UDP	PA-O3A-PB	-2.45	124.44	132.83
2	C	501	A1L68	C12-C11-C4	2.43	115.18	111.51
2	A	501	A1L68	C14-C13-C42	-2.41	108.45	112.92

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	C	501	A1L68	C38-C15-C13	2.38	119.84	118.10
2	B	501	A1L68	C1-C2-C42	-2.37	104.44	111.61
4	D	504	UDP	PA-O3A-PB	-2.36	124.73	132.83
2	C	501	A1L68	C30-C21-C23	2.34	115.31	110.18
2	A	501	A1L68	C12-C11-C4	2.33	115.03	111.51
2	B	501	A1L68	C30-C21-C23	2.32	115.28	110.18
2	D	501	A1L68	C38-C15-C13	2.32	119.80	118.10
4	C	504	UDP	PA-O3A-PB	-2.31	124.89	132.83
2	B	501	A1L68	C1-C2-C4	2.28	113.76	109.11
2	B	501	A1L68	C38-C15-C13	2.24	119.73	118.10
4	C	504	UDP	O3B-PB-O3A	2.23	112.12	104.64
2	A	501	A1L68	O8-C23-C21	-2.23	120.90	123.16
2	B	501	A1L68	C22-C21-C30	-2.22	106.31	109.76
2	C	501	A1L68	C14-C13-C42	-2.21	108.83	112.92
4	A	504	UDP	O3B-PB-O3A	2.20	112.02	104.64
2	A	501	A1L68	C30-C21-C23	2.20	115.01	110.18
4	D	504	UDP	O3B-PB-O3A	2.20	112.00	104.64
4	B	504	UDP	O3B-PB-O3A	2.19	111.97	104.64
2	A	501	A1L68	C12-C13-C42	2.18	110.69	108.02
2	D	501	A1L68	C30-C21-C23	2.15	114.90	110.18
2	D	501	A1L68	C1-C2-C42	-2.12	105.20	111.61
2	B	501	A1L68	C2-C42-C13	2.12	119.25	117.17
2	D	501	A1L68	C2-C42-C13	2.08	119.22	117.17
2	C	501	A1L68	C12-C13-C42	2.06	110.55	108.02
2	C	501	A1L68	C2-C42-C13	2.05	119.19	117.17
2	B	501	A1L68	C14-C13-C42	-2.05	109.13	112.92
2	C	501	A1L68	C32-C19-C18	-2.04	110.75	112.70
2	D	501	A1L68	C14-C13-C42	-2.02	109.19	112.92
2	B	501	A1L68	C35-C34-C32	-2.00	109.42	113.88

There are no chirality outliers.

All (19) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	504	UDP	O4'-C4'-C5'-O5'
4	C	504	UDP	O4'-C4'-C5'-O5'
4	D	504	UDP	O4'-C4'-C5'-O5'
4	C	504	UDP	C3'-C4'-C5'-O5'
4	D	504	UDP	C3'-C4'-C5'-O5'
3	B	502	BMA	O5-C5-C6-O6
3	C	502	BMA	O5-C5-C6-O6
3	D	502	BMA	O5-C5-C6-O6

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Mol	Chain	Res	Type	Atoms
4	A	504	UDP	C3'-C4'-C5'-O5'
3	A	502	BMA	O5-C5-C6-O6
3	D	503	BMA	O5-C5-C6-O6
3	C	503	BMA	O5-C5-C6-O6
3	A	503	BMA	O5-C5-C6-O6
3	B	503	BMA	O5-C5-C6-O6
4	B	504	UDP	O4'-C4'-C5'-O5'
2	A	501	A1L68	C22-C21-C23-O8
2	B	501	A1L68	C22-C21-C23-O8
2	C	501	A1L68	C22-C21-C23-O8
2	D	501	A1L68	C22-C21-C23-O8

All (4) ring outliers are listed below:

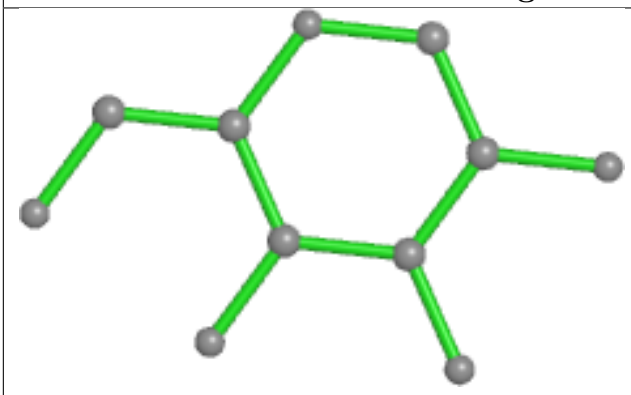
Mol	Chain	Res	Type	Atoms
3	C	503	BMA	C1-C2-C3-C4-C5-O5
3	A	503	BMA	C1-C2-C3-C4-C5-O5
3	B	503	BMA	C1-C2-C3-C4-C5-O5
3	D	503	BMA	C1-C2-C3-C4-C5-O5

5 monomers are involved in 7 short contacts:

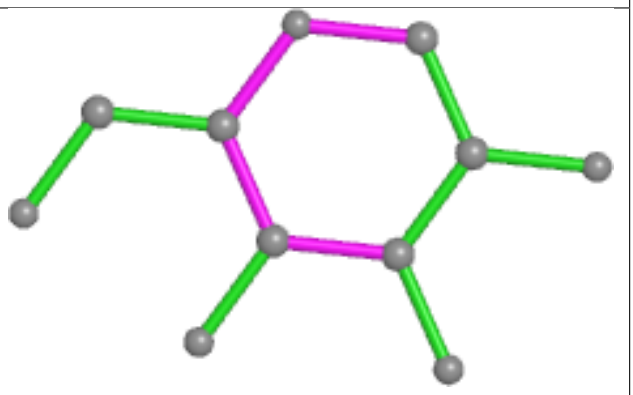
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	502	BMA	2	0
3	B	503	BMA	1	0
4	B	504	UDP	2	0
3	B	502	BMA	1	0
4	A	504	UDP	1	0

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.

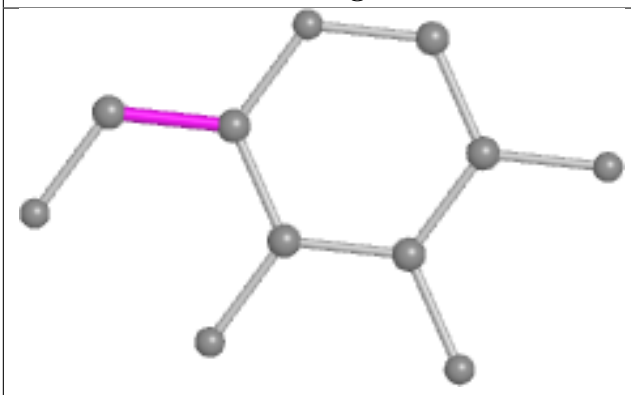
Ligand BMA A 503



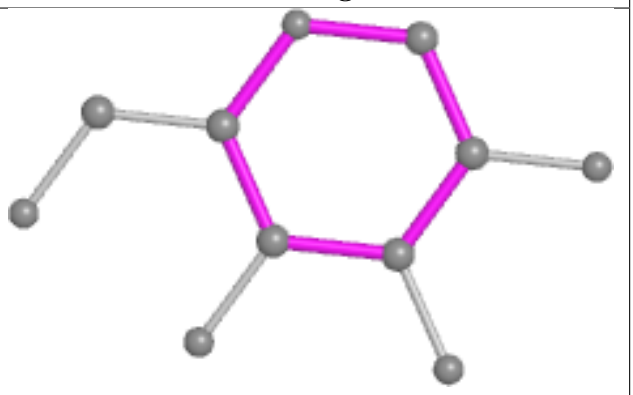
Bond lengths



Bond angles

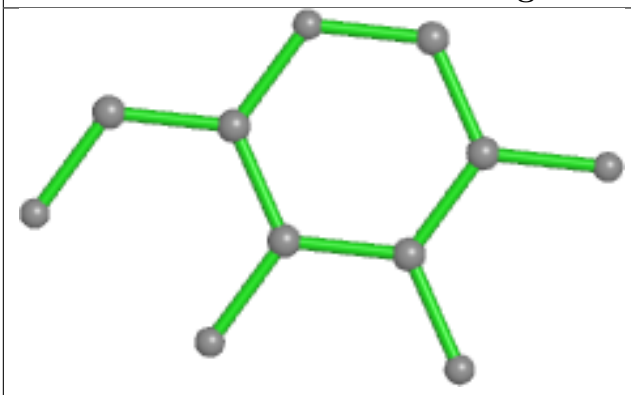


Torsions



Rings

Ligand BMA D 503



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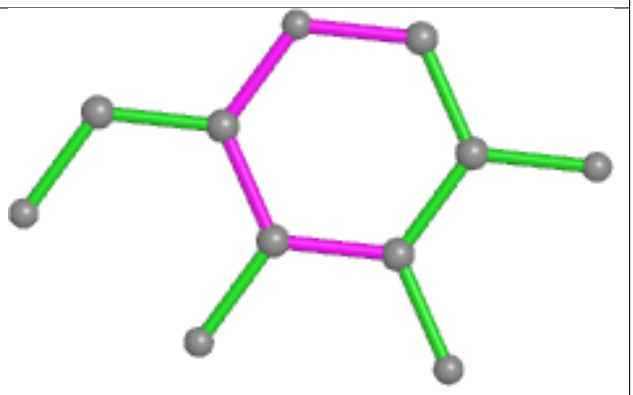

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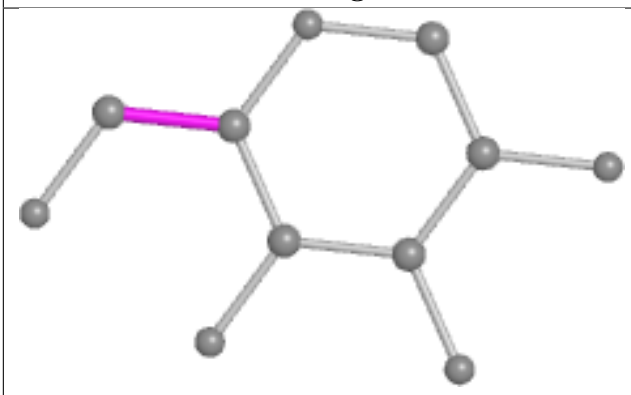

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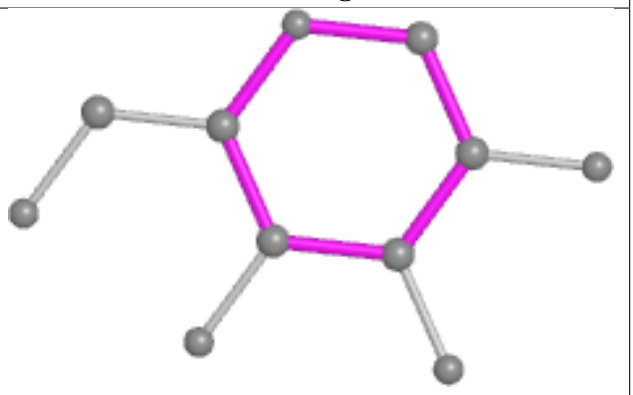
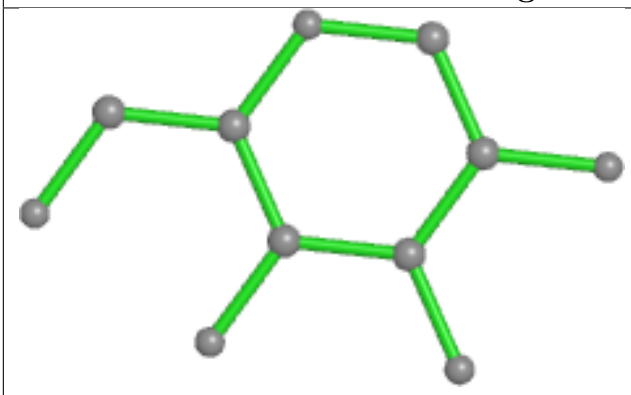


Rings

Ligand BMA A 502



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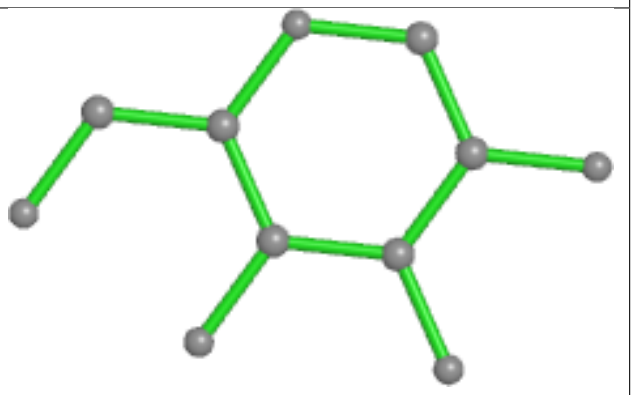

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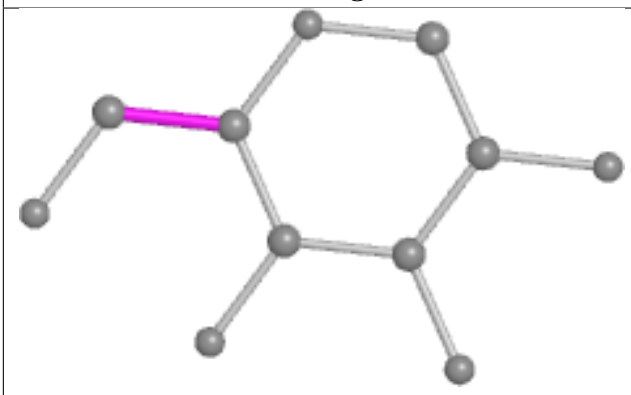

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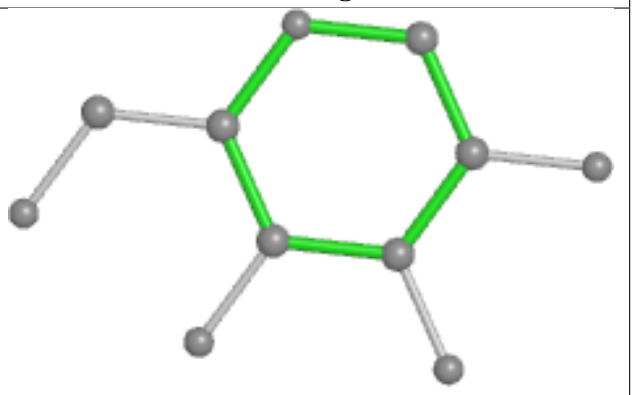
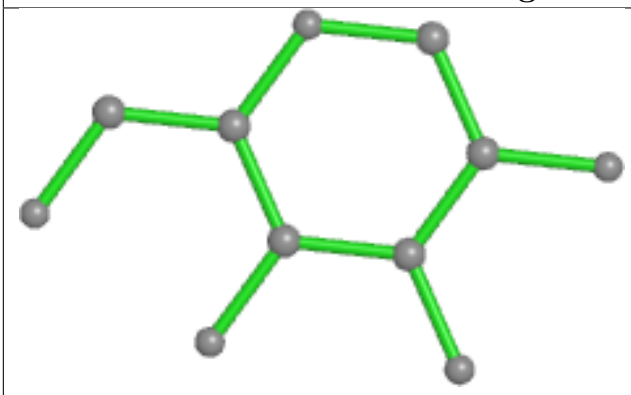


Rings

Ligand BMA B 503



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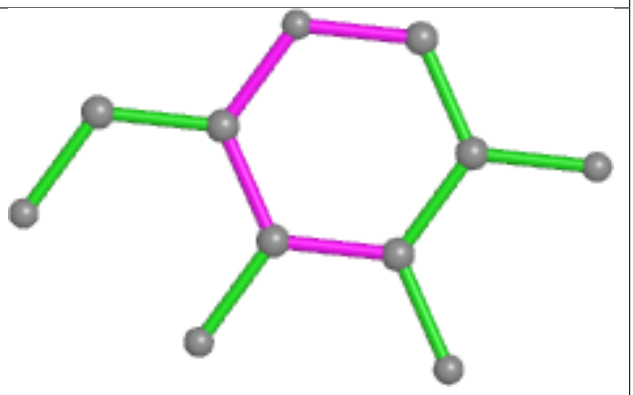

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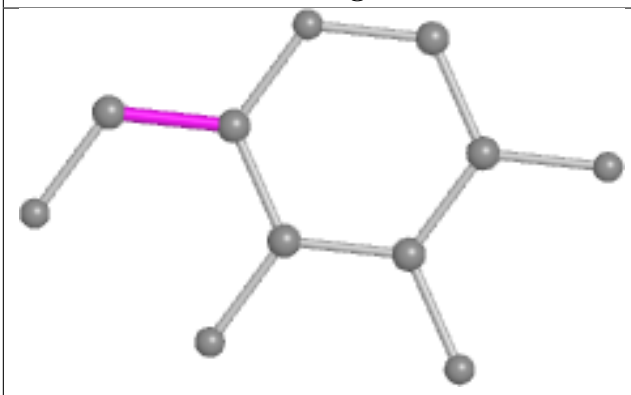

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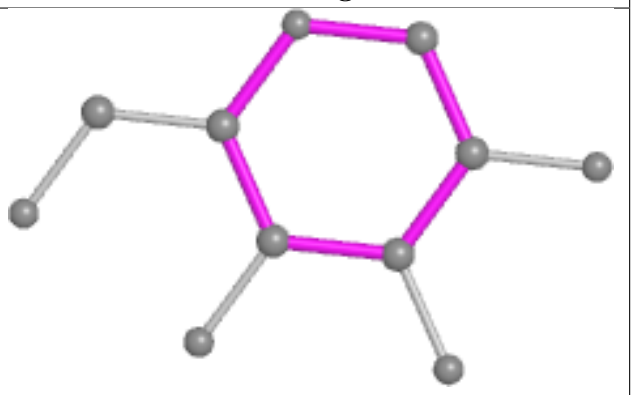
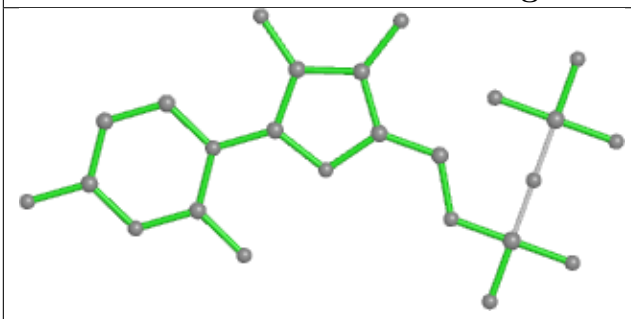


Rings

Ligand UDP D 504



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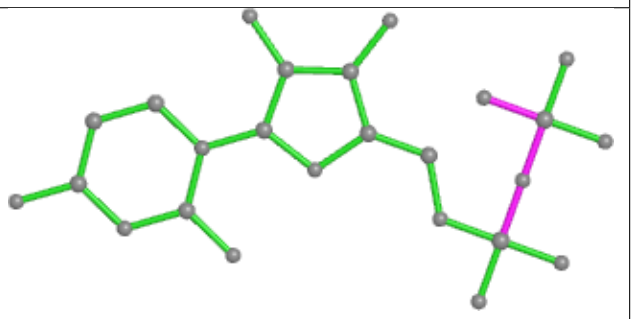
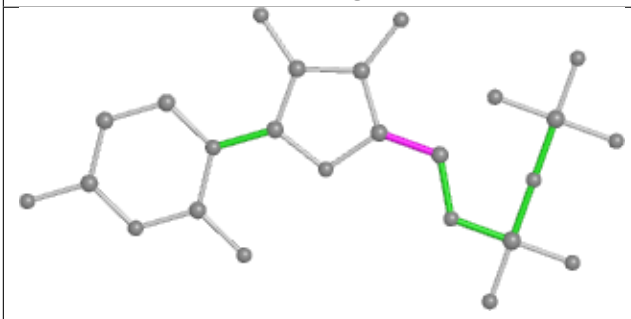


Bond angles



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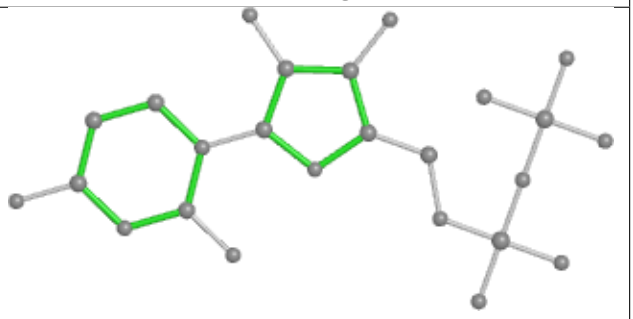
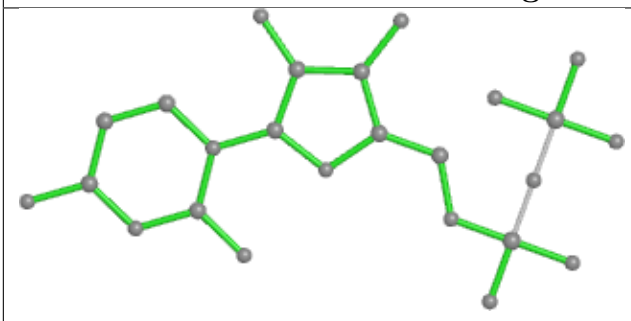


Rings

Ligand UDP B 504



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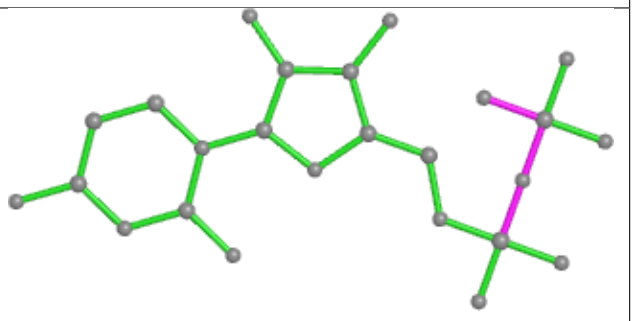

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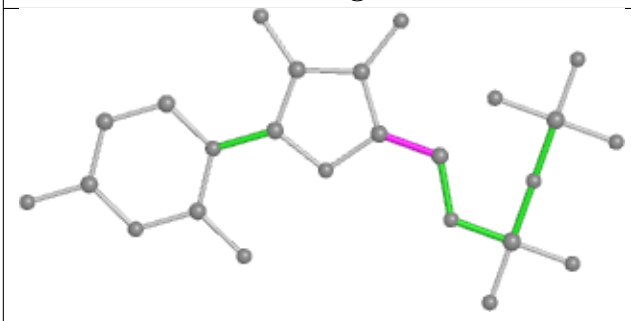

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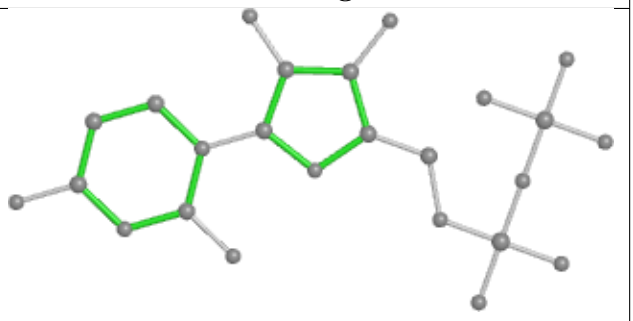
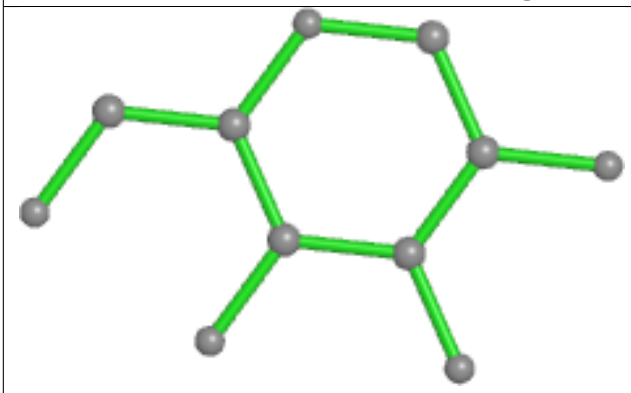


Rings

Ligand BMA C 503



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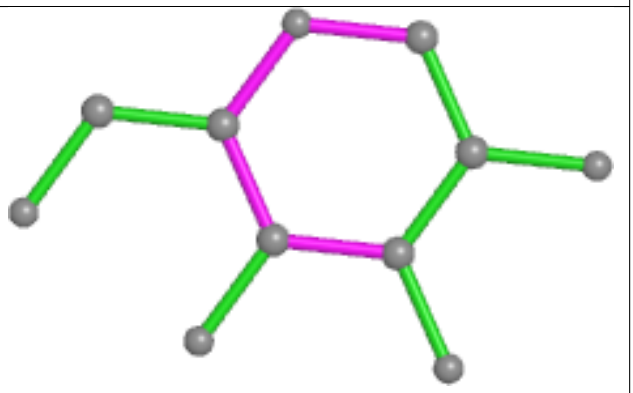

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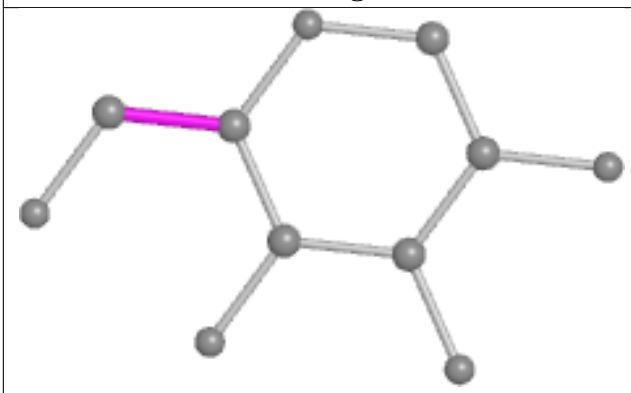

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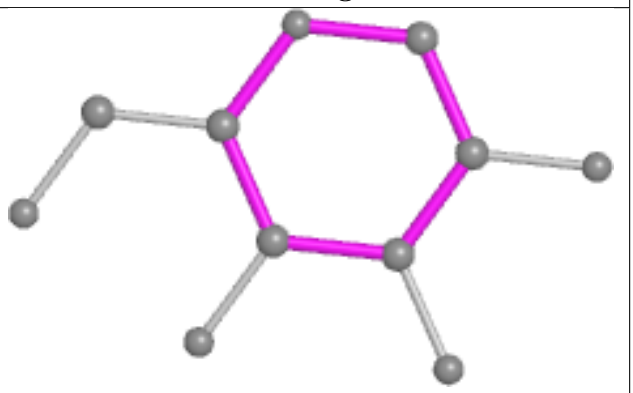
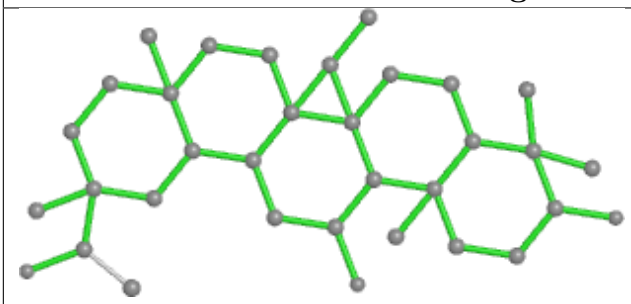


Rings

Ligand A1L68 D 501



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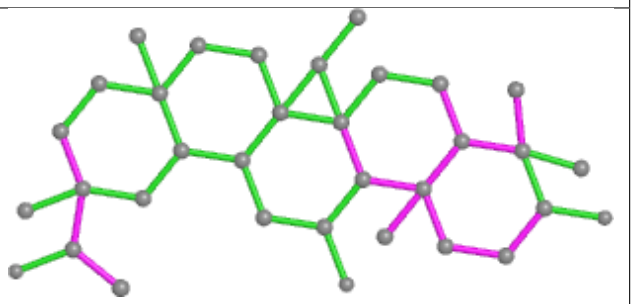
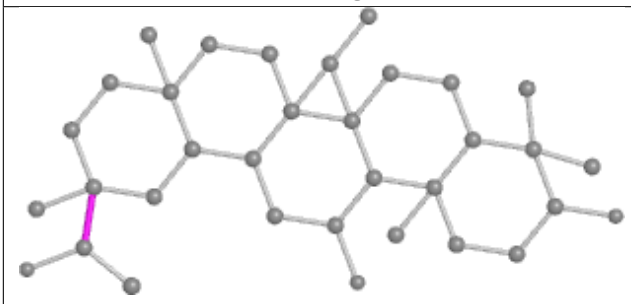


Bond angles



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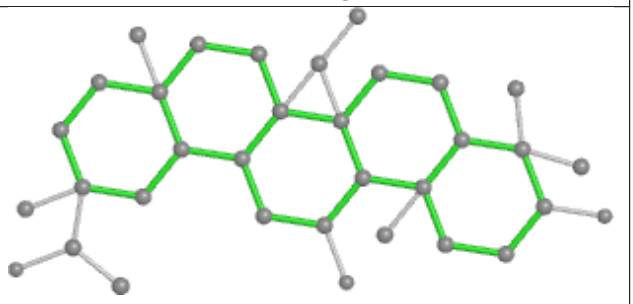
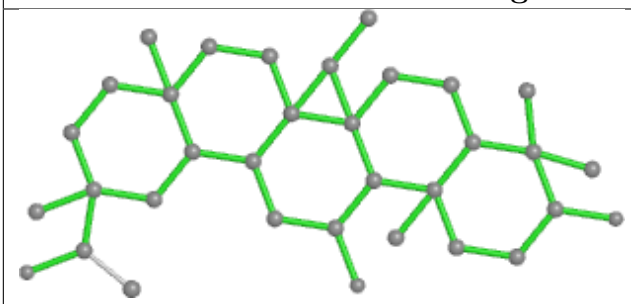


Rings

Ligand A1L68 B 501



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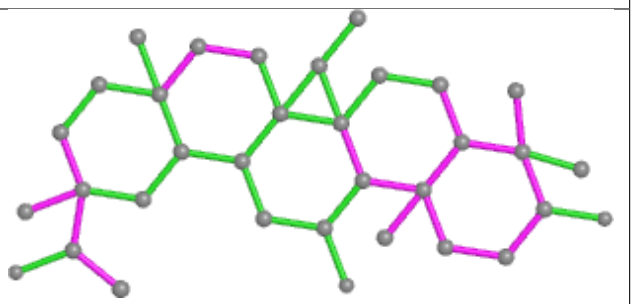

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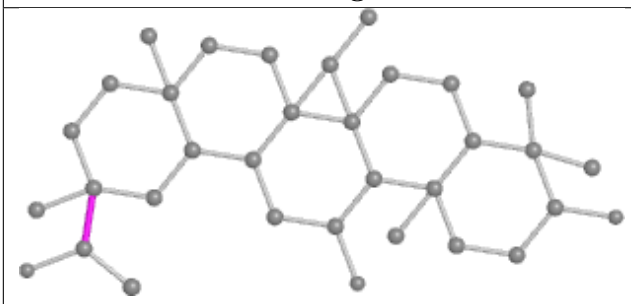

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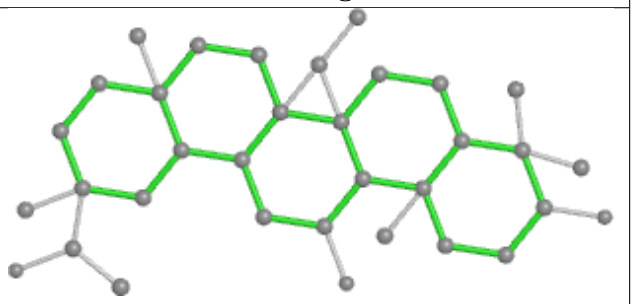
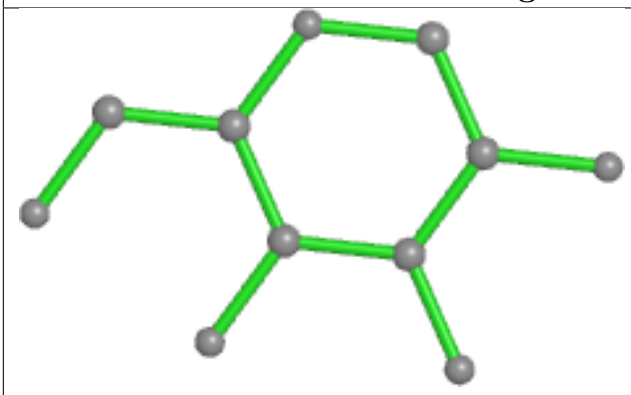


Rings

Ligand BMA B 502



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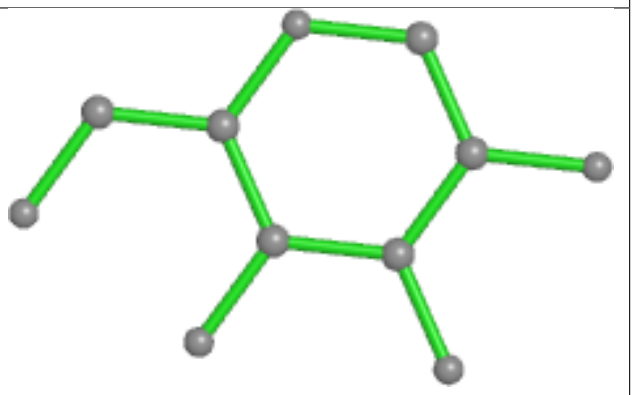
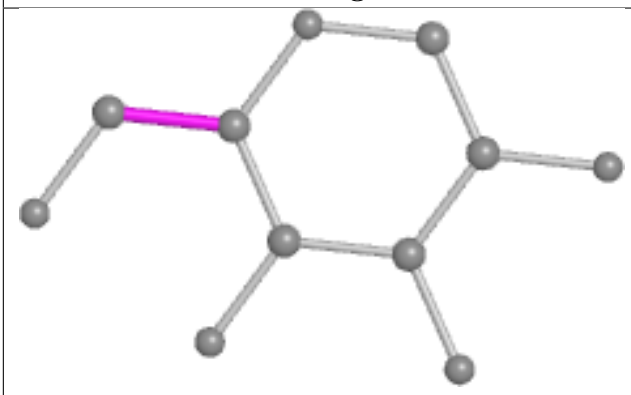


Bond angles



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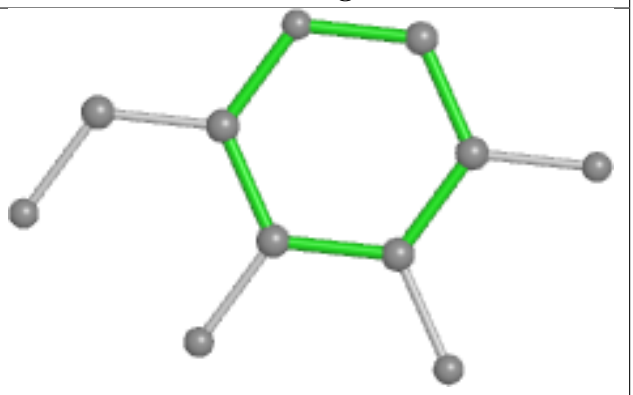
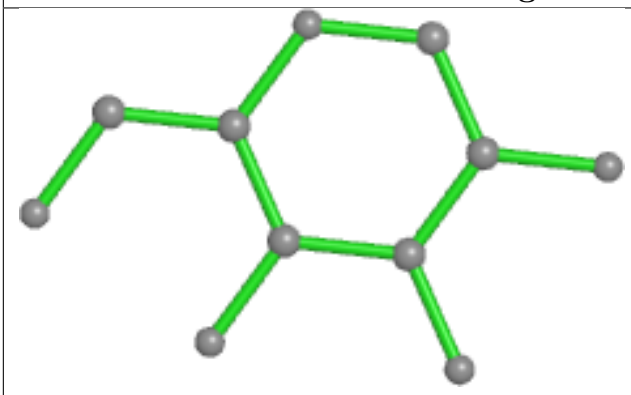


Rings

Ligand BMA C 502



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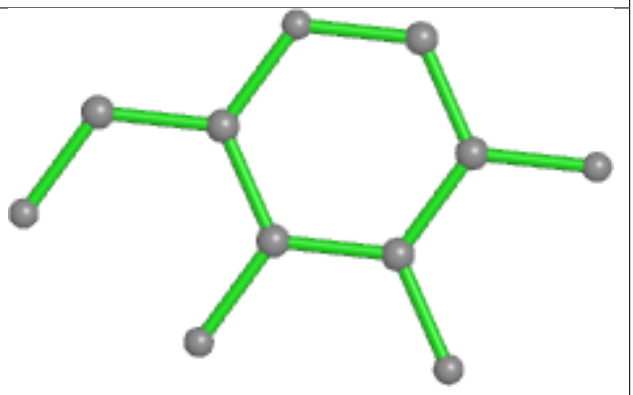

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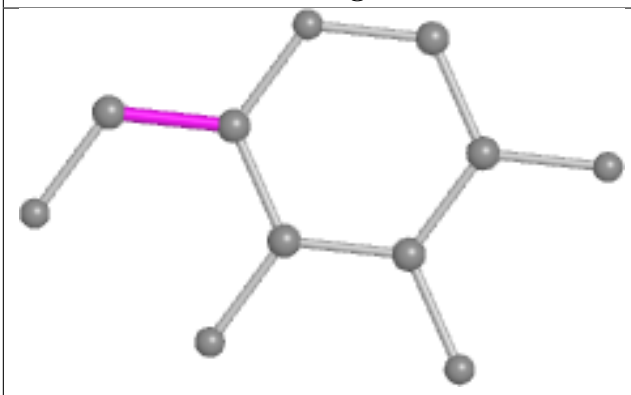

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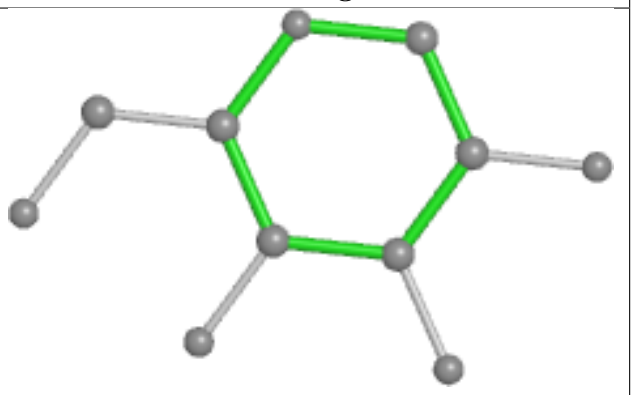
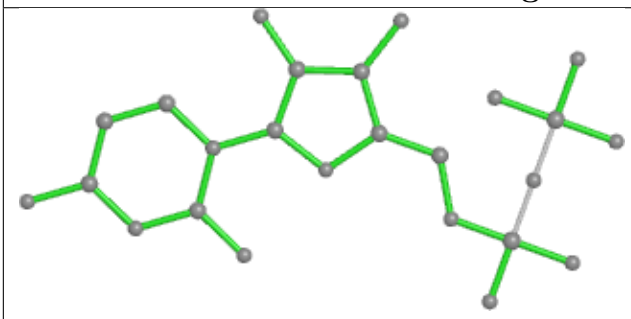


Rings

Ligand UDP C 504



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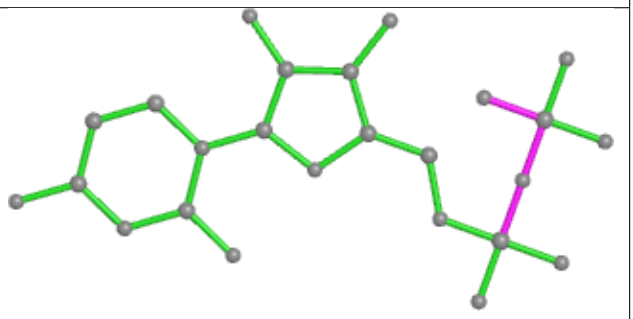

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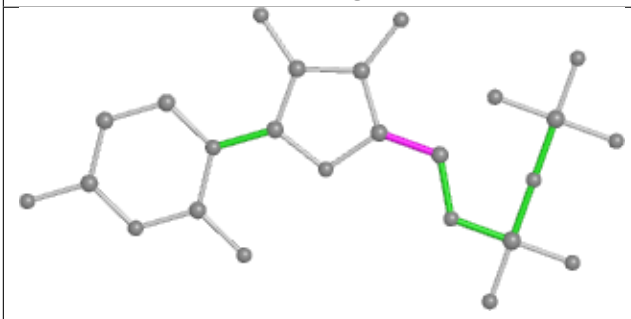

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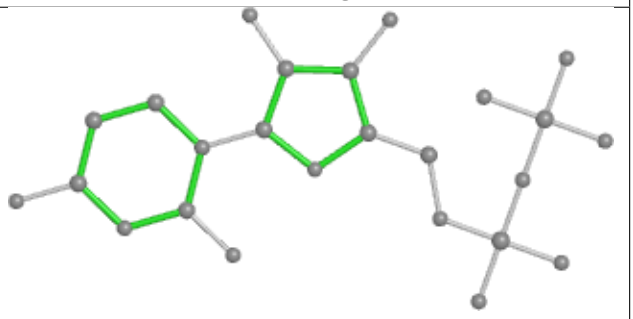
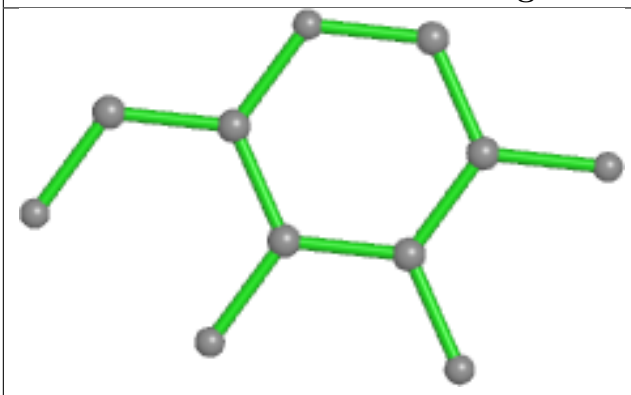


Rings

Ligand BMA D 502



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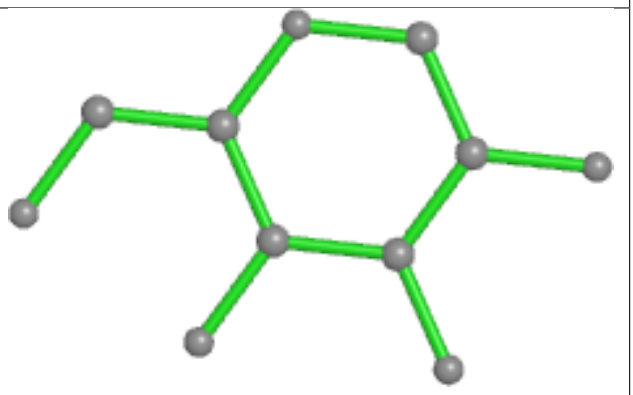
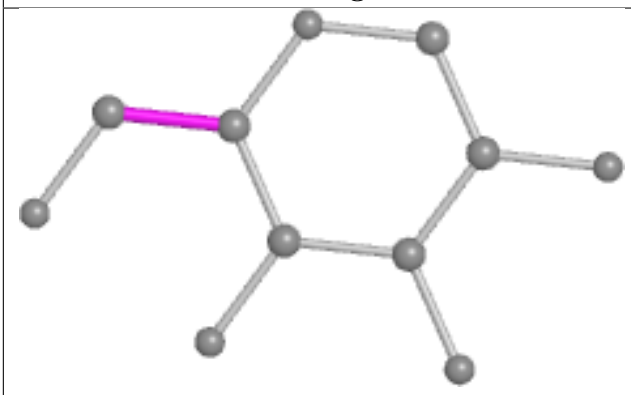


Bond angles



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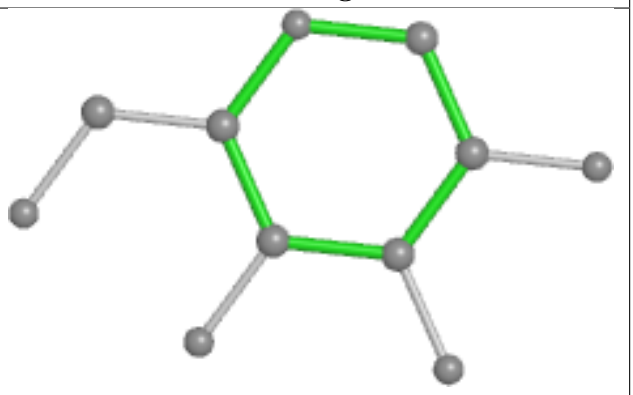
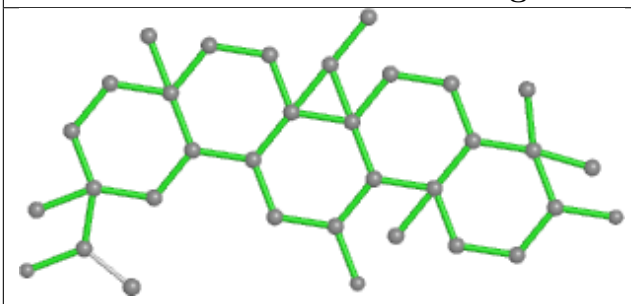


Rings

Ligand A1L68 A 501



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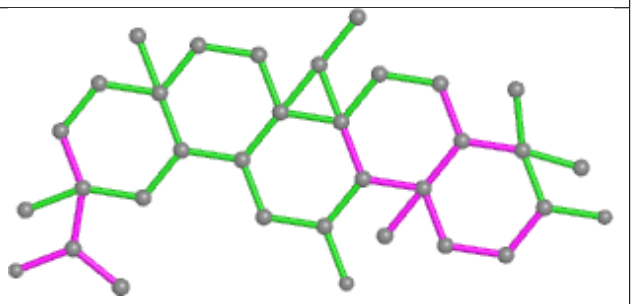
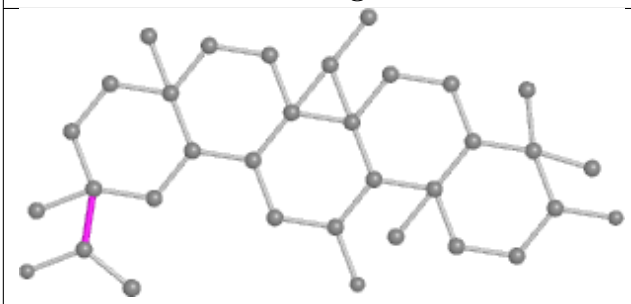


Bond angles



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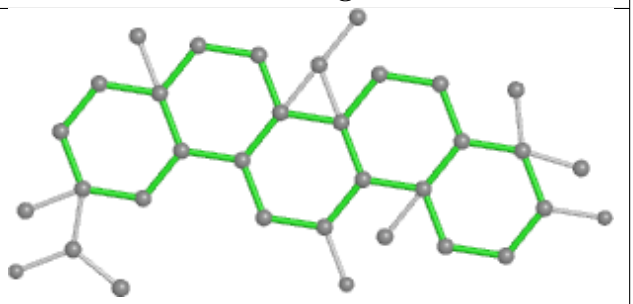
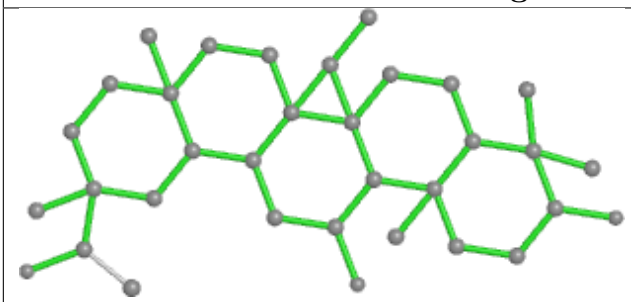


Rings

Ligand A1L68 C 501



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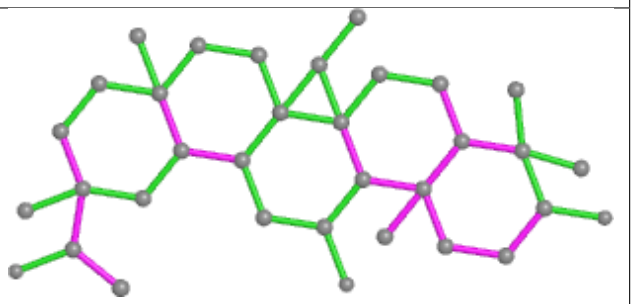
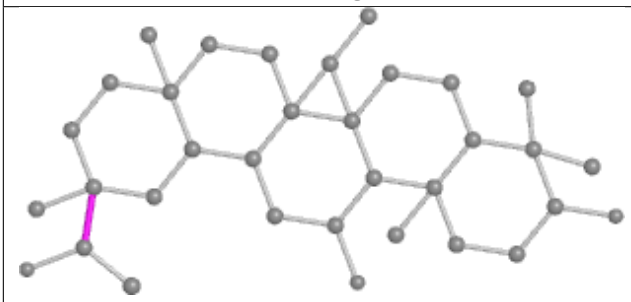
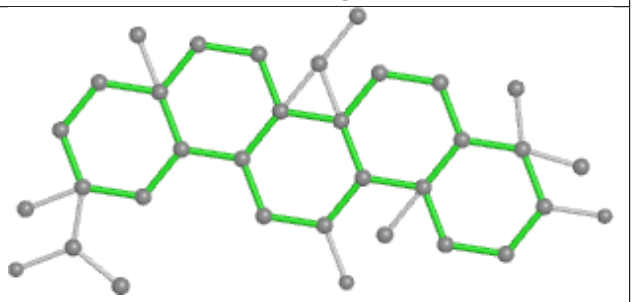


Bond angles

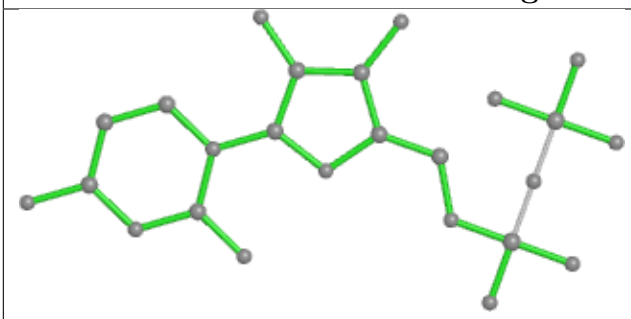


Torsions

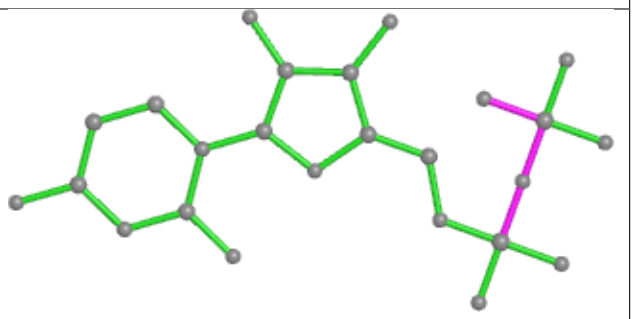


Rings

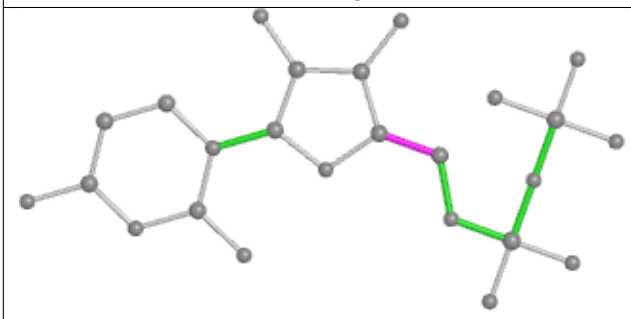
Ligand UDP A 504



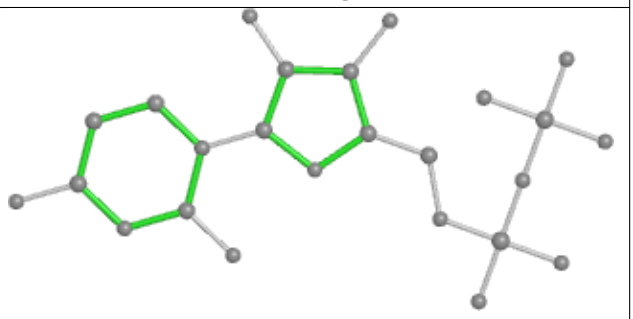
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers

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	471/471 (100%)	-0.68	0	100	100	14, 40, 70, 122	0
1	B	471/471 (100%)	-0.70	0	100	100	15, 43, 71, 126	0
1	C	471/471 (100%)	-0.67	0	100	100	17, 43, 71, 108	0
1	D	471/471 (100%)	-0.63	0	100	100	18, 45, 76, 114	0
All	All	1884/1884 (100%)	-0.67	0	100	100	14, 43, 72, 126	0

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 oligosaccharides 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
3	BMA	A	502	11/12	0.67	0.11	84,88,91,91	0
3	BMA	D	502	11/12	0.74	0.10	78,82,84,84	0
3	BMA	B	502	11/12	0.80	0.10	78,82,84,85	0
3	BMA	C	502	11/12	0.81	0.09	84,89,91,92	0

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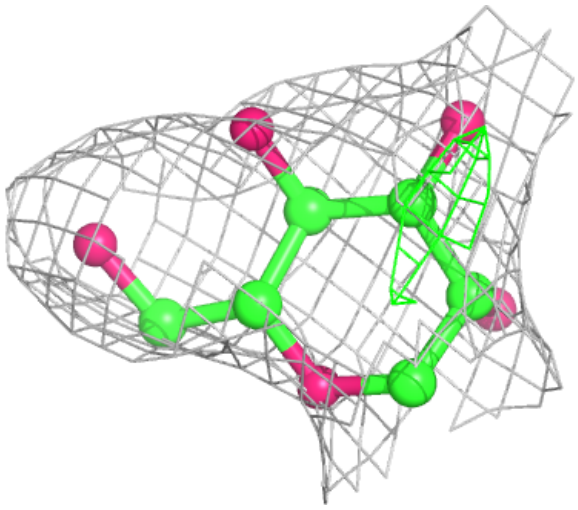
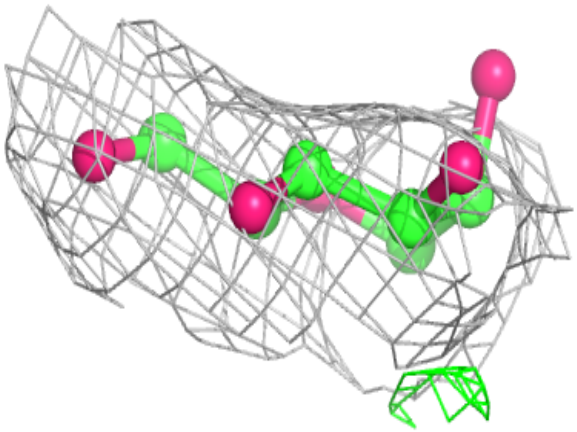
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	BMA	B	503	11/12	0.88	0.11	53,59,64,65	0
3	BMA	C	503	11/12	0.89	0.16	60,63,68,68	0
3	BMA	A	503	11/12	0.89	0.15	63,68,77,78	0
3	BMA	D	503	11/12	0.89	0.12	59,62,69,72	0
2	A1L68	A	501	34/34	0.93	0.09	46,53,61,74	0
2	A1L68	C	501	34/34	0.94	0.10	50,54,65,76	0
4	UDP	A	504	25/25	0.94	0.08	20,25,31,32	0
4	UDP	D	504	25/25	0.95	0.08	26,31,37,38	0
4	UDP	C	504	25/25	0.96	0.06	35,38,42,45	0
2	A1L68	B	501	34/34	0.96	0.08	40,48,58,70	0
2	A1L68	D	501	34/34	0.97	0.08	41,45,61,71	0
4	UDP	B	504	25/25	0.97	0.06	22,26,29,32	0

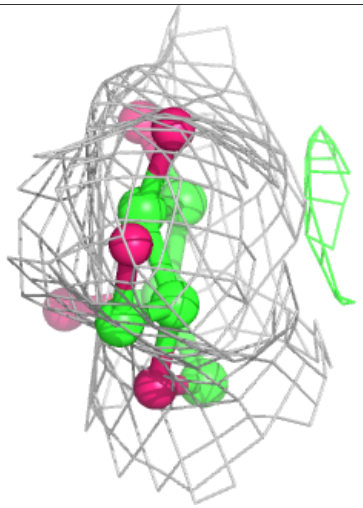
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around BMA A 502:

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

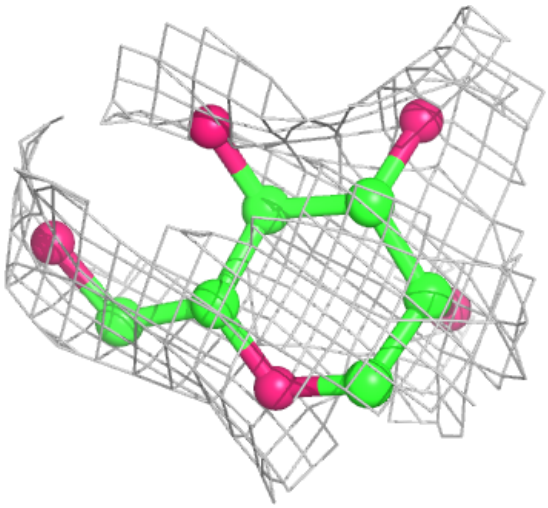


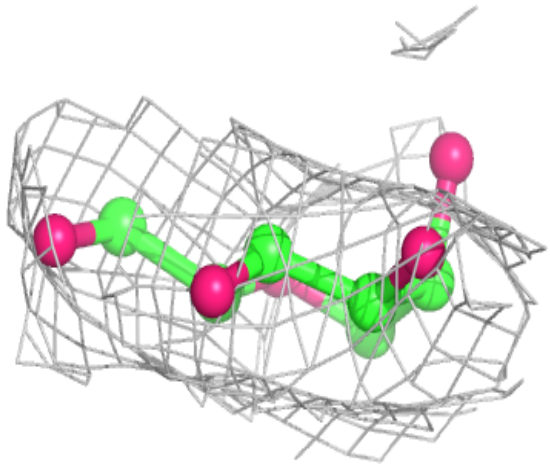


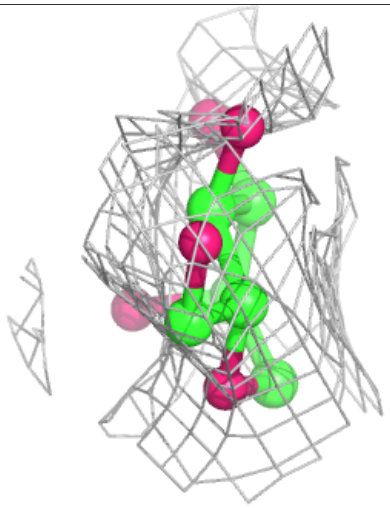


Electron density around BMA D 502:

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

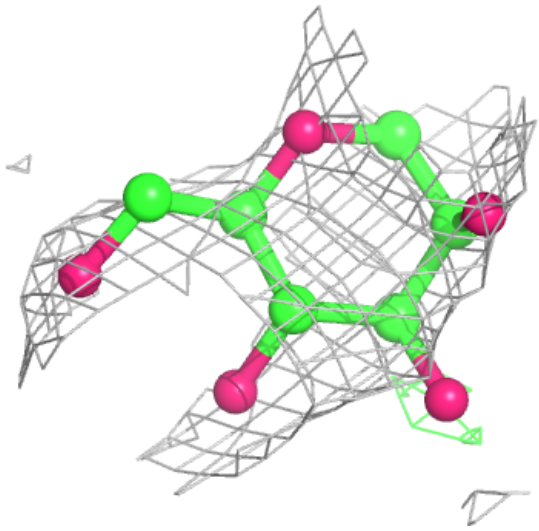


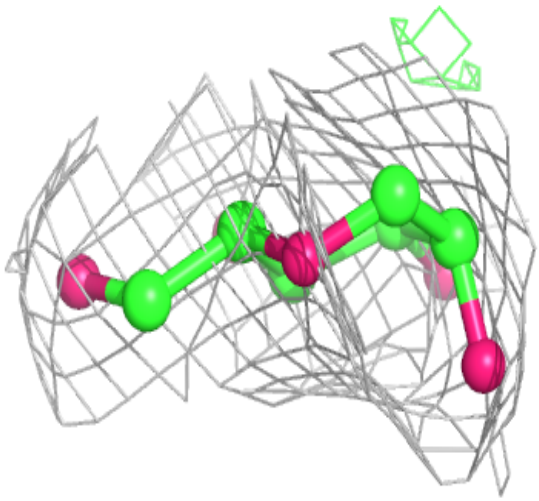


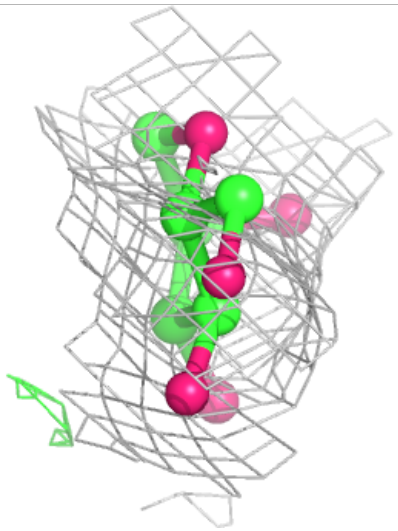


Electron density around BMA B 502:

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

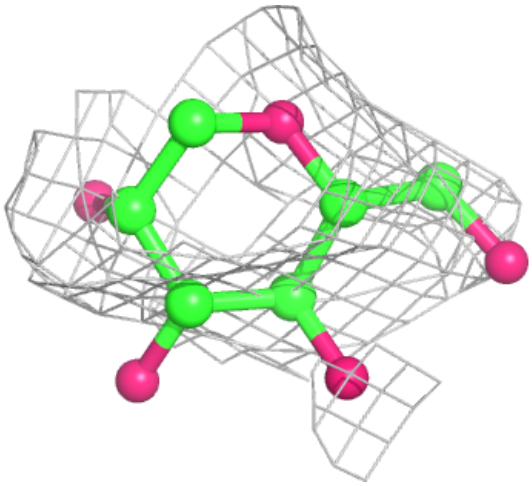


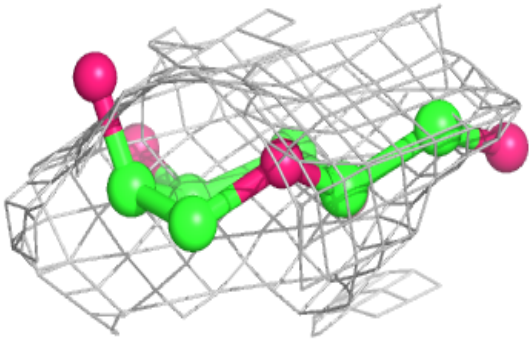


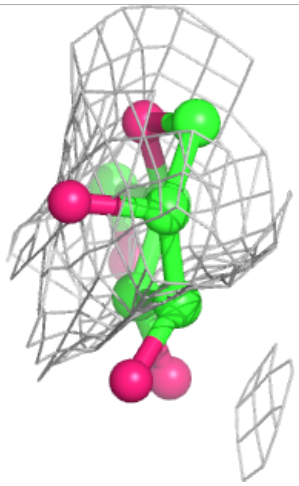


Electron density around BMA C 502:

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

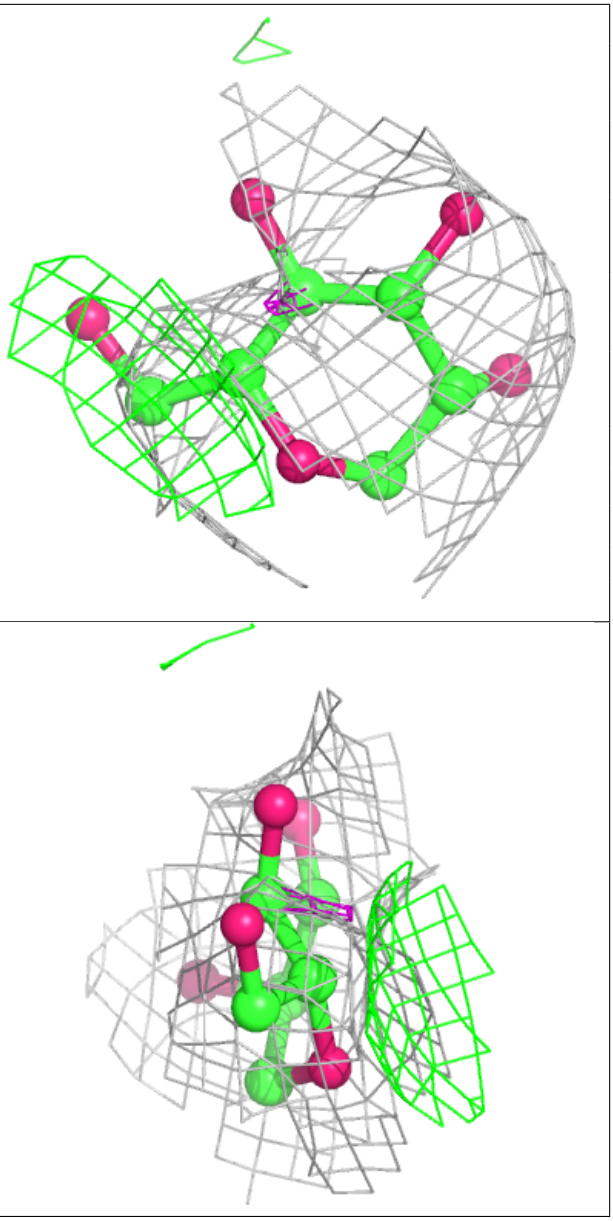






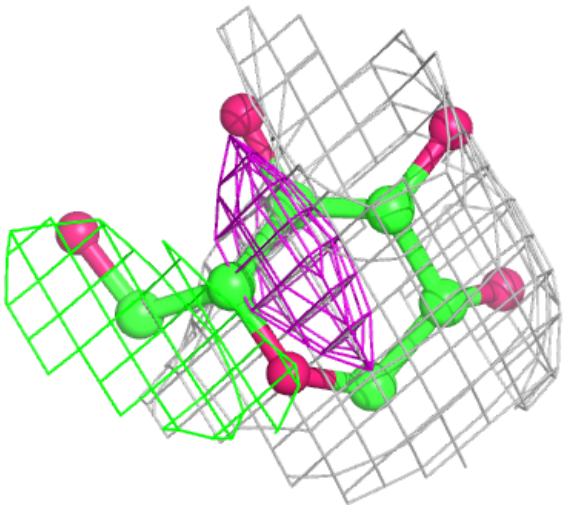
Electron density around BMA B 503:

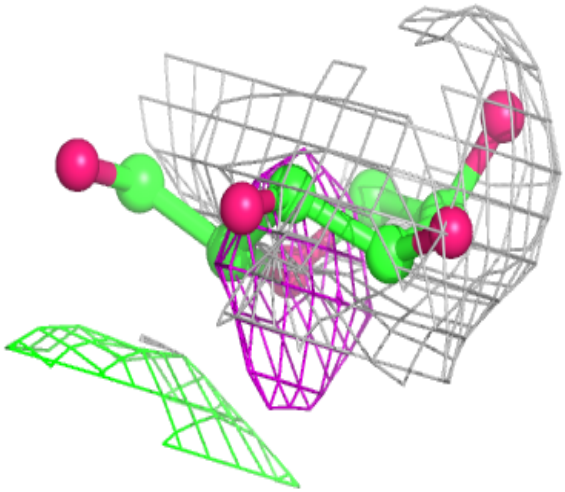
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

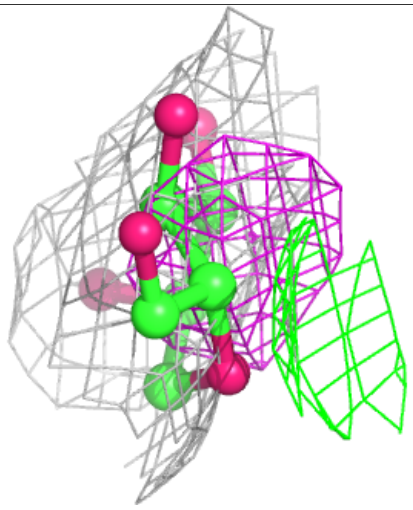


Electron density around BMA C 503:

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

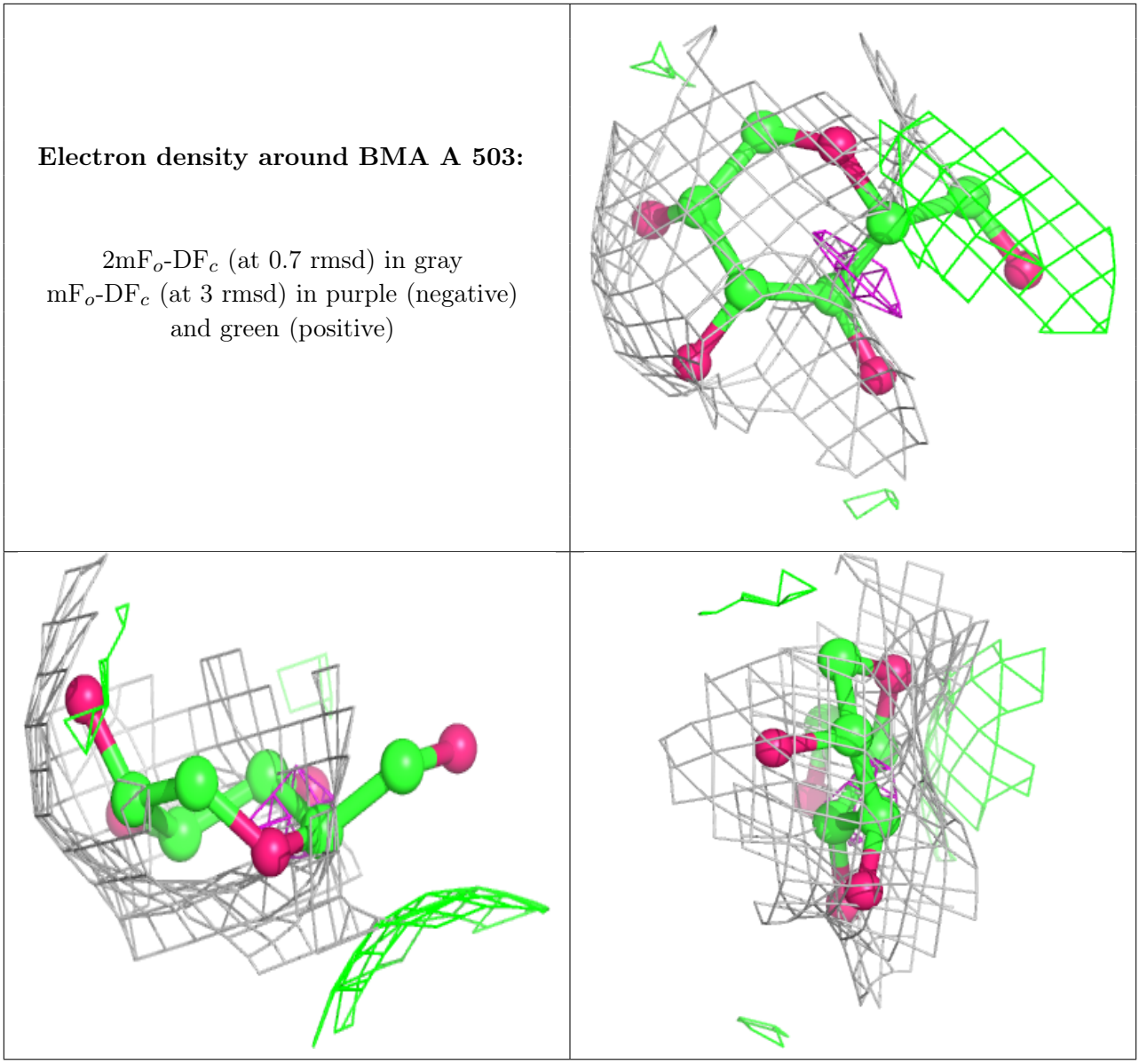






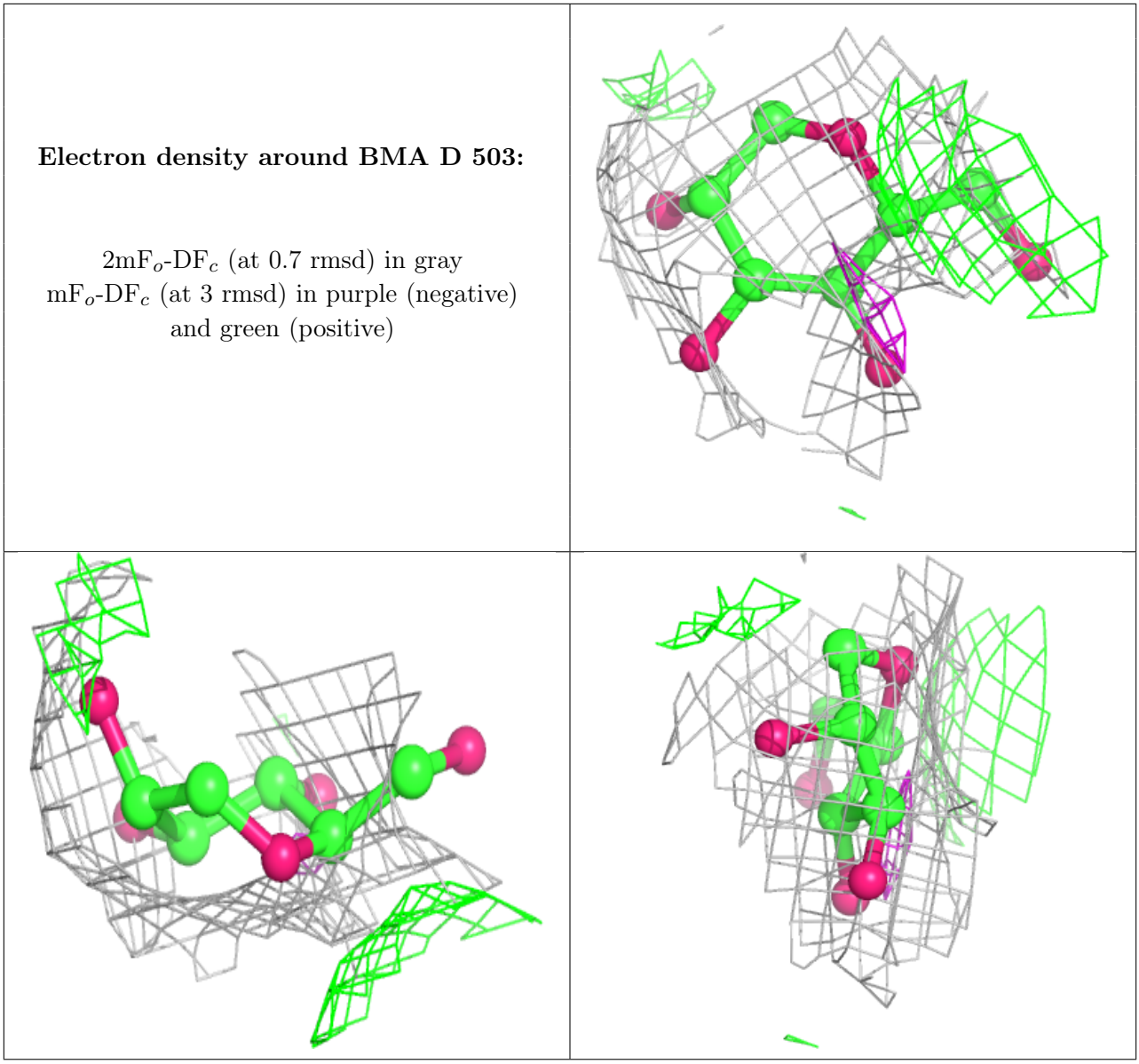
Electron density around BMA A 503:

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



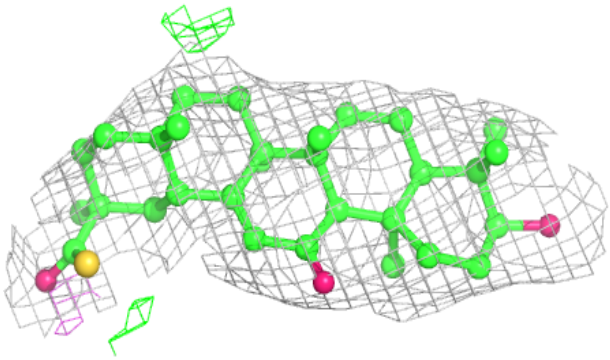
Electron density around BMA D 503:

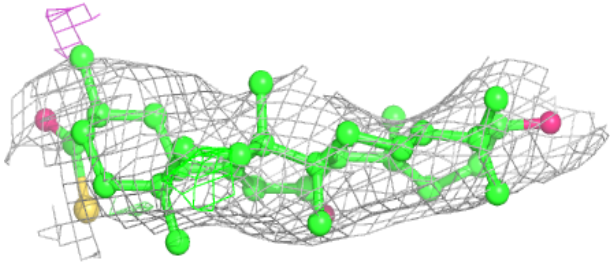
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

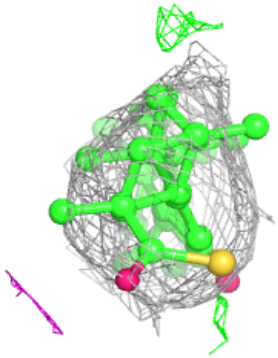


Electron density around A1L68 A 501:

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

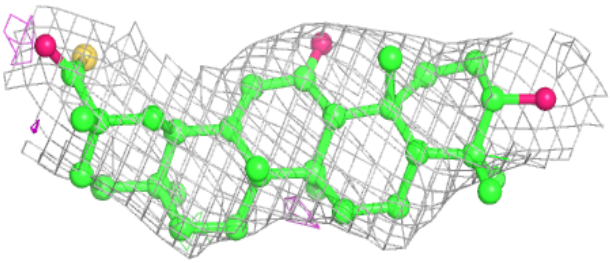


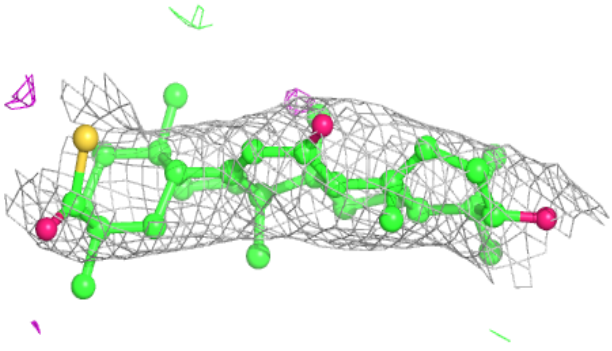


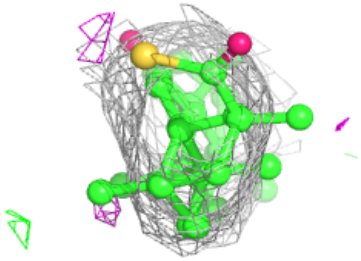


Electron density around A1L68 C 501:

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

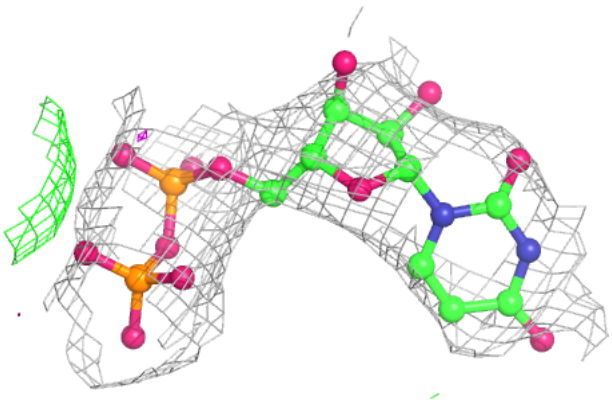


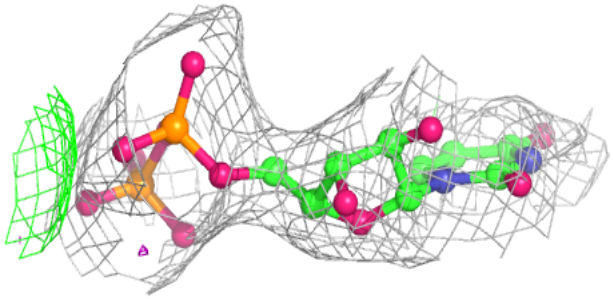


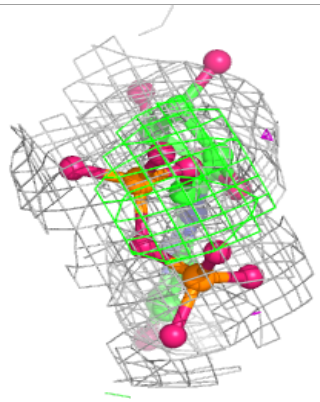


Electron density around UDP A 504:

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

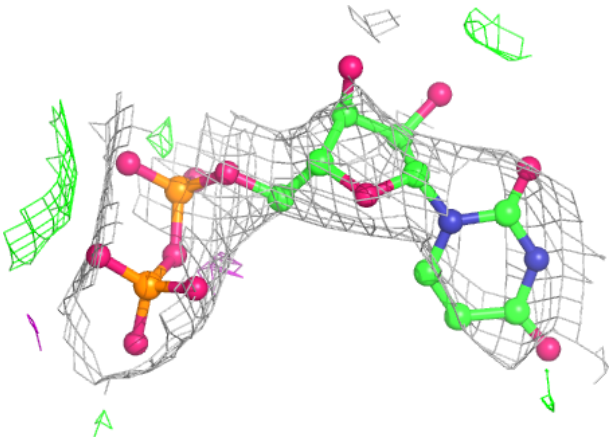


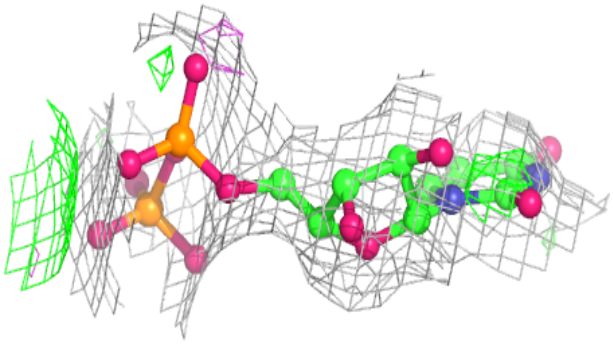


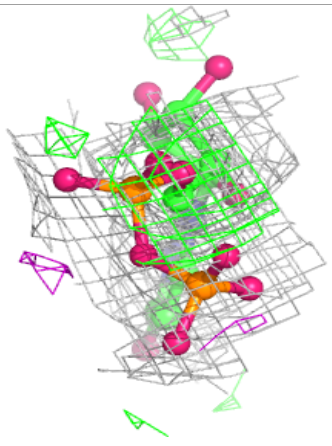


Electron density around UDP D 504:

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

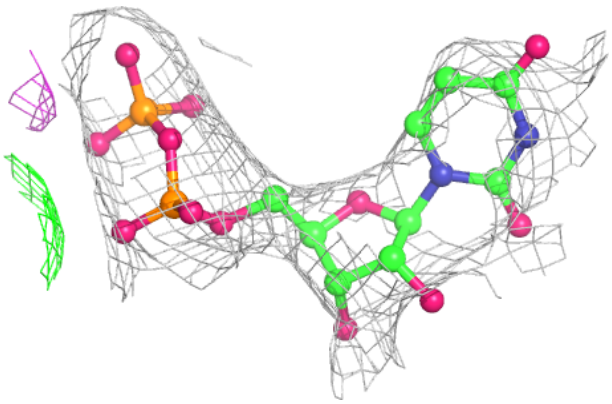


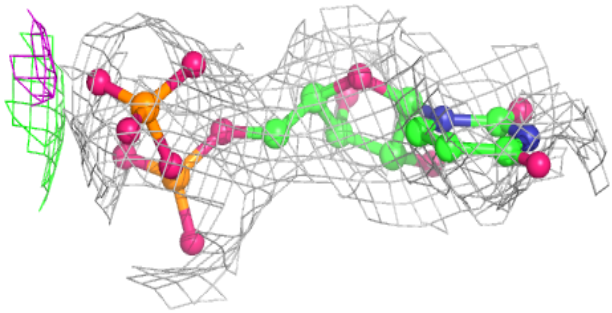


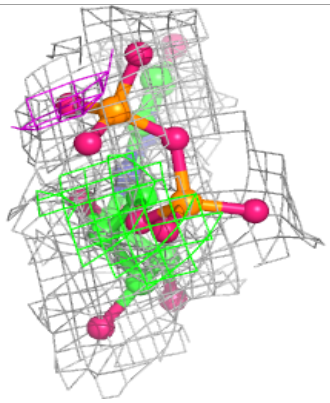


Electron density around UDP C 504:

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

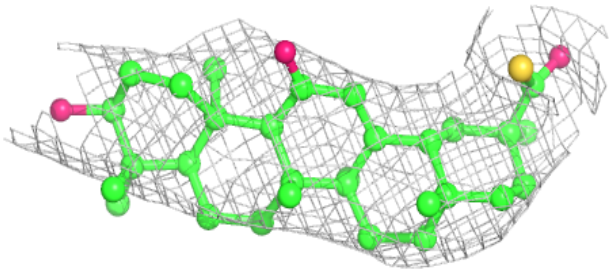


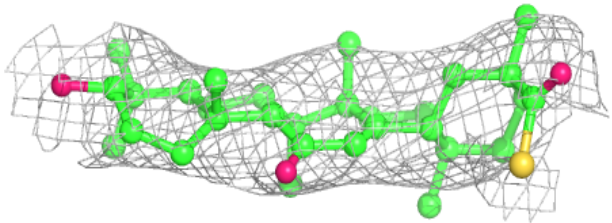


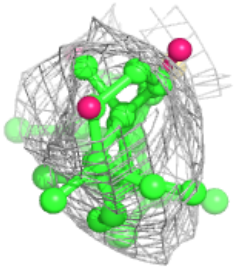


Electron density around A1L68 B 501:

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

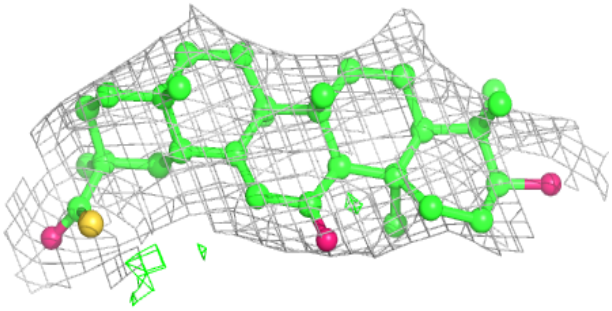


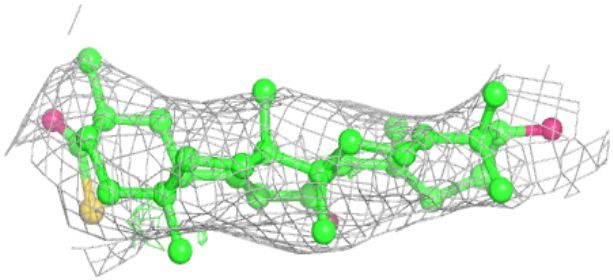


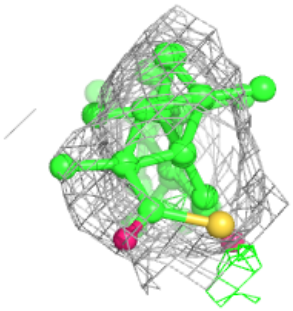


Electron density around A1L68 D 501:

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

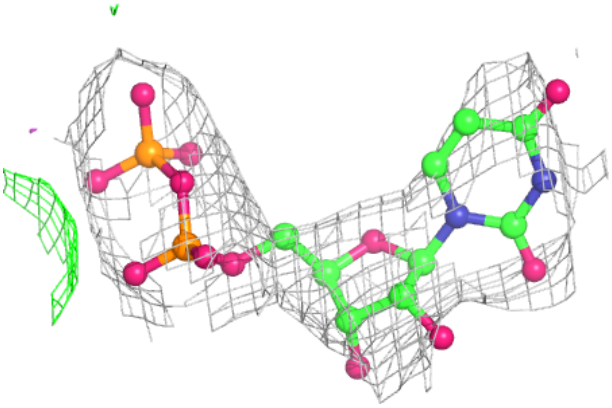


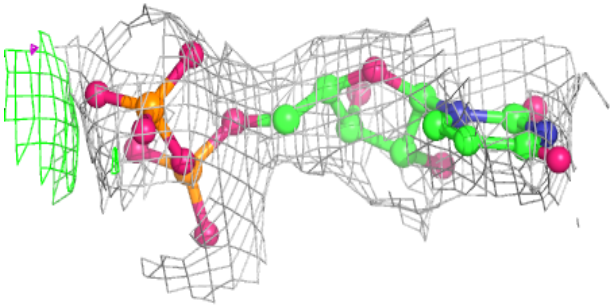


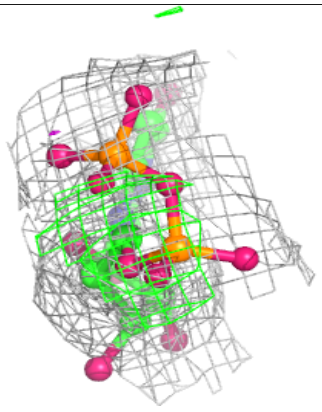


Electron density around UDP B 504:

$2mF_o$-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.