



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 8, 2026 – 09:25 AM UTC

PDB ID : 5YJ2 / pdb_00005yj2
Title : Crystal structure of Bacillus sp. TB-90 urate oxidase without dehydration
Authors : Hibi, T.; Itoh, T.; Nishiya, Y.
Deposited on : 2017-10-07
Resolution : 1.71 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity : 4-5-2 with Phenix2.0
Mogul : 2022.3.0, CSD as543be (2022)
Xtriage (Phenix) : 2.0
EDS : 3.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4 : 9.0.010 (Gargrove)
Density-Fitness : 1.0.12
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

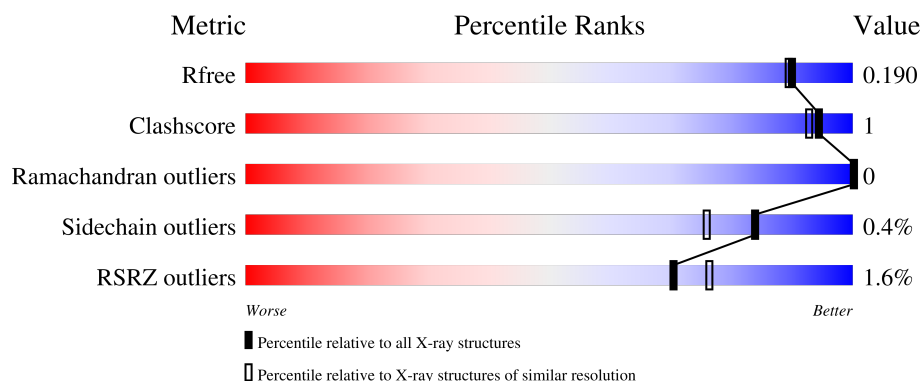
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.71 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	1039 (1.72-1.72)
Clashscore	190562	1049 (1.72-1.72)
Ramachandran outliers	187476	1041 (1.72-1.72)
Sidechain outliers	187428	1041 (1.72-1.72)
RSRZ outliers	180081	1039 (1.72-1.72)

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

Mol	Chain	Length	Quality of chain
1	A	312	2% 93%
1	B	312	3% 94%
1	C	312	95%
1	D	312	2% 94%

2 Entry composition [i](#)

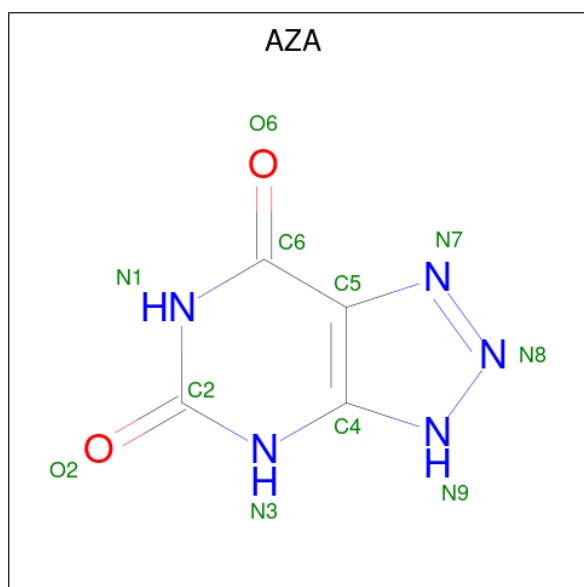
There are 6 unique types of molecules in this entry. The entry contains 20470 atoms, of which 9414 are hydrogens and 0 are deuteriums.

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 Uric acid degradation bifunctional protein.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	303	Total	C	H	N	O	S	0	1	0
			4746	1547	2341	400	454	4			
1	B	303	Total	C	H	N	O	S	0	4	0
			4810	1576	2367	398	465	4			
1	C	303	Total	C	H	N	O	S	0	2	0
			4776	1562	2351	397	462	4			
1	D	303	Total	C	H	N	O	S	0	1	0
			4714	1545	2319	394	452	4			

- Molecule 2 is 8-AZAXANTHINE (CCD ID: AZA) (formula: $C_4H_3N_5O_2$) (labeled as "Ligand of Interest" by depositor).



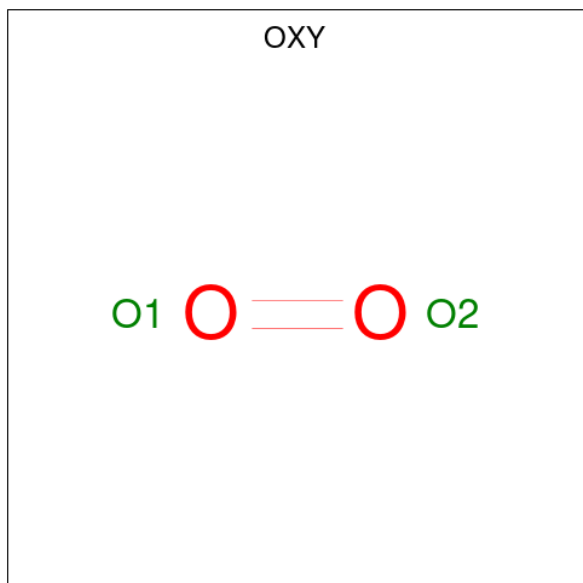
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	H	N	O	0	0
			14	4	3	5	2		
2	B	1	Total	C	H	N	O	0	0
			14	4	3	5	2		

Continued on next page...

Continued from previous page...

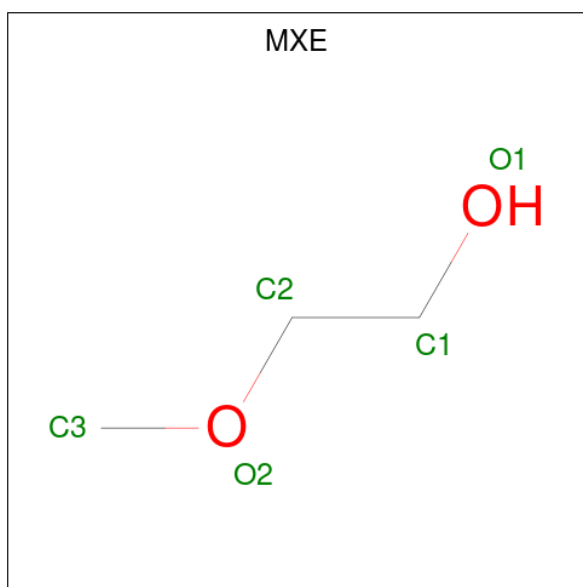
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	C	1	Total	C	H	N	O	0	0
			14	4	3	5	2		
2	D	1	Total	C	H	N	O	0	0
			14	4	3	5	2		

- Molecule 3 is OXYGEN MOLECULE (CCD ID: OXY) (formula: O₂) (labeled as "Ligand of Interest" by depositor).



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

- Molecule 4 is 2-METHOXYETHANOL (CCD ID: MXE) (formula: C₃H₈O₂).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	A	1	Total	C	H	O	0	0
			13	3	8	2		
4	B	1	Total	C	H	O	0	0
			13	3	8	2		
4	C	1	Total	C	H	O	0	0
			13	3	8	2		

- Molecule 5 is SULFATE ION (CCD ID: SO4) (formula: O₄S).



Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	B	1	Total	O S	0	0
			5	4 1		

Continued on next page...

Continued from previous page...

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

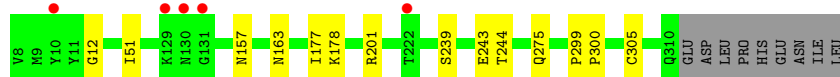
- Molecule 6 is water.

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	A	314	Total	O		0	0
			314	314			
6	B	336	Total	O		0	0
			336	336			
6	C	346	Total	O		0	0
			346	346			
6	D	315	Total	O		0	0
			315	315			

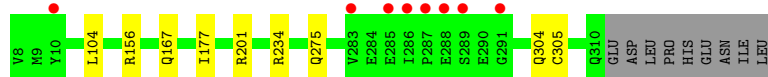
3 Residue-property plots [i](#)

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: Uric acid degradation bifunctional protein



- Molecule 1: Uric acid degradation bifunctional protein



- Molecule 1: Uric acid degradation bifunctional protein



- Molecule 1: Uric acid degradation bifunctional protein



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α , β , γ	133.07Å 143.90Å 70.23Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	34.11 – 1.71 34.11 – 1.71	Depositor EDS
% Data completeness (in resolution range)	99.0 (34.11-1.71) 88.5 (34.11-1.71)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	0.80 (at 1.71Å)	Xtrriage
Refinement program	PHENIX (1.12_2829)	Depositor
R, R_{free}	0.163 , 0.190 0.163 , 0.190	Depositor DCC
R_{free} test set	14403 reflections (9.87%)	wwPDB-VP
Wilson B-factor (Å ²)	15.4	Xtrriage
Anisotropy	0.400	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.42 , 49.1	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.97	EDS
Total number of atoms	20470	wwPDB-VP
Average B, all atoms (Å ²)	22.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 42.89 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 1.9091e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

¹Intensities estimated from amplitudes.

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

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: MXE, OCS, OXY, SO4, AZA

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	0.22	0/2451	0.45	0/3326
1	B	0.22	0/2490	0.47	0/3379
1	C	0.24	0/2472	0.48	0/3354
1	D	0.22	0/2441	0.45	0/3312
All	All	0.23	0/9854	0.46	0/13371

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2405	2341	2338	7	0
1	B	2443	2367	2366	7	0
1	C	2425	2351	2347	5	0
1	D	2395	2319	2317	5	0
2	A	11	3	3	1	0
2	B	11	3	3	1	0
2	C	11	3	3	1	0
2	D	11	3	3	1	0
3	A	2	0	0	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	2	0	0	1	0
3	C	2	0	0	0	0
3	D	2	0	0	1	0
4	A	5	8	8	1	0
4	B	5	8	8	2	0
4	C	5	8	8	0	0
5	B	5	0	0	0	0
5	C	5	0	0	0	0
6	A	314	0	0	1	0
6	B	336	0	0	2	0
6	C	346	0	0	3	0
6	D	315	0	0	0	0
All	All	11056	9414	9404	24	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 (24) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:201:ARG:HH12	2:B:401:AZA:HN3	1.45	0.65
1:D:201:ARG:HH12	2:D:401:AZA:HN3	1.44	0.64
1:C:201:ARG:HH12	2:C:402:AZA:HN3	1.47	0.62
1:A:201:ARG:HH12	2:A:401:AZA:HN3	1.47	0.61
1:B:275:GLN:HE21	4:B:404:MXE:H31	1.67	0.59
1:C:234:ARG:NH1	6:C:504:HOH:O	2.34	0.57
1:B:234:ARG:NH2	6:B:502:HOH:O	2.39	0.56
1:B:304:GLN:NE2	3:B:402:OXY:O2	2.43	0.51
1:C:234:ARG:NH2	6:C:509:HOH:O	2.44	0.49
1:A:275:GLN:OE1	4:A:403:MXE:H31	2.14	0.48
1:B:104:LEU:O	1:B:156:ARG:NH2	2.47	0.47
1:B:275:GLN:NE2	4:B:404:MXE:H31	2.30	0.47
1:D:114[B]:SER:OG	1:D:153:ASN:OD1	2.30	0.45
1:A:157:ASN:OD1	1:A:163:ASN:OD1	2.35	0.44
1:C:214:LYS:NZ	6:C:505:HOH:O	2.35	0.42
1:B:167:GLN:HG2	6:B:541:HOH:O	2.19	0.42
1:C:299:PRO:N	1:C:300:PRO:CD	2.82	0.42
1:A:178:LYS:NZ	1:A:244:THR:O	2.52	0.42
1:A:12:GLY:HA3	1:A:51:ILE:O	2.20	0.41
6:A:599:HOH:O	1:D:128:VAL:HG21	2.20	0.41
1:A:239:SER:O	1:A:243:GLU:HG3	2.21	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:299:PRO:N	1:A:300:PRO:CD	2.83	0.41
1:D:304:GLN:NE2	3:D:402:OXY:O2	2.51	0.40
1:D:12:GLY:HA3	1:D:51:ILE:O	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	301/312 (96%)	296 (98%)	5 (2%)	0	100	100
1	B	304/312 (97%)	300 (99%)	4 (1%)	0	100	100
1	C	302/312 (97%)	297 (98%)	5 (2%)	0	100	100
1	D	301/312 (96%)	297 (99%)	4 (1%)	0	100	100
All	All	1208/1248 (97%)	1190 (98%)	18 (2%)	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	257/278 (92%)	256 (100%)	1 (0%)	84	76
1	B	258/278 (93%)	257 (100%)	1 (0%)	84	76

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	C	257/278 (92%)	256 (100%)	1 (0%)	84	76
1	D	252/278 (91%)	251 (100%)	1 (0%)	84	76
All	All	1024/1112 (92%)	1020 (100%)	4 (0%)	84	76

All (4) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	177	ILE
1	B	177	ILE
1	C	177	ILE
1	D	177	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	78	ASN
1	A	175	GLN
1	B	78	ASN
1	B	175	GLN
1	B	275	GLN
1	C	175	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

4 non-standard protein/DNA/RNA residues 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
1	OCS	C	305	1	6,8,9	0.85	0	7,11,13	1.35	1 (14%)
1	OCS	B	305	1	6,8,9	0.79	0	7,11,13	1.59	1 (14%)
1	OCS	A	305	1	6,8,9	0.86	0	7,11,13	1.57	2 (28%)
1	OCS	D	305	1	6,8,9	0.81	0	7,11,13	1.49	1 (14%)

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
1	OCS	C	305	1	-	0/4/7/9	-
1	OCS	B	305	1	-	0/4/7/9	-
1	OCS	A	305	1	-	0/4/7/9	-
1	OCS	D	305	1	-	0/4/7/9	-

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	305	OCS	OD3-SG-CB	2.89	111.07	106.76
1	D	305	OCS	OD1-SG-CB	2.45	110.42	106.76
1	A	305	OCS	OD2-SG-CB	2.34	110.48	105.97
1	C	305	OCS	OD1-SG-CB	2.32	110.22	106.76
1	A	305	OCS	OD1-SG-CB	2.18	110.02	106.76

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

13 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	OXY	A	402	-	1,1,1	0.45	0	-		
2	AZA	A	401	-	12,12,12	1.52	1 (8%)	12,17,17	2.25	4 (33%)
5	SO4	C	401	-	4,4,4	0.26	0	6,6,6	0.11	0
3	OXY	C	403	-	1,1,1	0.32	0	-		
2	AZA	B	401	-	12,12,12	1.55	1 (8%)	12,17,17	2.00	3 (25%)
4	MXE	C	404	-	4,4,4	0.45	0	3,3,3	0.47	0
2	AZA	C	402	-	12,12,12	1.56	1 (8%)	12,17,17	2.12	4 (33%)
4	MXE	A	403	-	4,4,4	0.45	0	3,3,3	0.30	0
3	OXY	B	402	-	1,1,1	0.35	0	-		
5	SO4	B	403	-	4,4,4	0.23	0	6,6,6	0.16	0
2	AZA	D	401	-	12,12,12	1.54	1 (8%)	12,17,17	2.11	4 (33%)
3	OXY	D	402	-	1,1,1	0.38	0	-		
4	MXE	B	404	-	4,4,4	0.48	0	3,3,3	0.34	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	AZA	A	401	-	-	-	0/2/2/2
2	AZA	B	401	-	-	-	0/2/2/2
4	MXE	C	404	-	-	0/2/2/2	-
2	AZA	C	402	-	-	-	0/2/2/2
4	MXE	A	403	-	-	2/2/2/2	-
2	AZA	D	401	-	-	-	0/2/2/2
4	MXE	B	404	-	-	2/2/2/2	-

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	401	AZA	C6-N1	-3.07	1.33	1.38
2	D	401	AZA	C6-N1	-3.02	1.33	1.38

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	402	AZA	C6-N1	-2.97	1.33	1.38
2	B	401	AZA	C6-N1	-2.83	1.33	1.38

All (15) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	401	AZA	N3-C4-N9	5.08	132.85	124.57
2	D	401	AZA	N3-C4-N9	4.69	132.22	124.57
2	C	402	AZA	N3-C4-N9	4.62	132.10	124.57
2	B	401	AZA	N3-C4-N9	4.28	131.56	124.57
2	A	401	AZA	C6-N1-C2	-4.00	120.86	126.37
2	C	402	AZA	C6-N1-C2	-3.80	121.14	126.37
2	D	401	AZA	C6-N1-C2	-3.71	121.26	126.37
2	B	401	AZA	C6-N1-C2	-3.51	121.53	126.37
2	A	401	AZA	C5-C6-N1	2.49	119.58	113.25
2	C	402	AZA	C5-C6-N1	2.38	119.31	113.25
2	D	401	AZA	C5-C6-N1	2.36	119.26	113.25
2	A	401	AZA	N3-C2-N1	2.30	119.35	115.74
2	B	401	AZA	C5-C6-N1	2.27	119.04	113.25
2	C	402	AZA	N3-C2-N1	2.22	119.23	115.74
2	D	401	AZA	N3-C2-N1	2.14	119.11	115.74

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	403	MXE	C1-C2-O2-C3
4	A	403	MXE	O1-C1-C2-O2
4	B	404	MXE	C1-C2-O2-C3
4	B	404	MXE	O1-C1-C2-O2

There are no ring outliers.

8 monomers are involved in 9 short contacts:

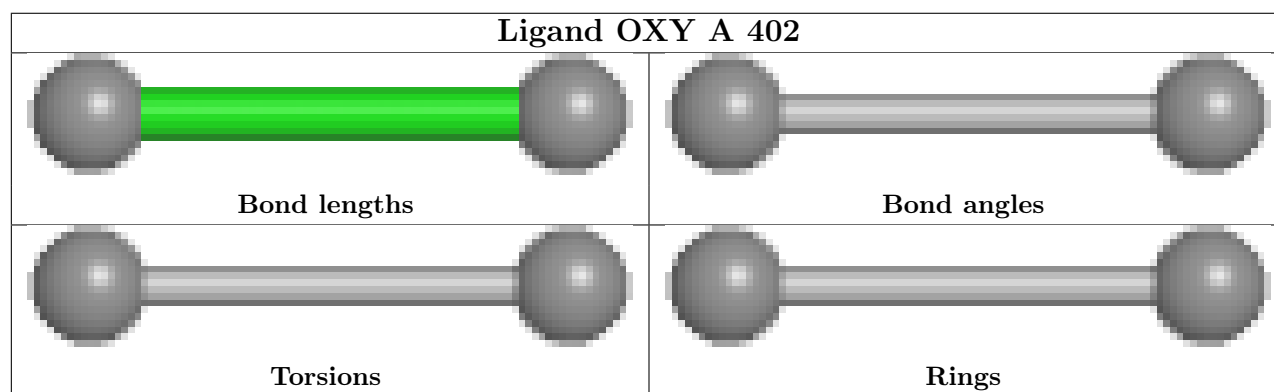
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	401	AZA	1	0
2	B	401	AZA	1	0
2	C	402	AZA	1	0
4	A	403	MXE	1	0
3	B	402	OXY	1	0
2	D	401	AZA	1	0

Continued on next page...

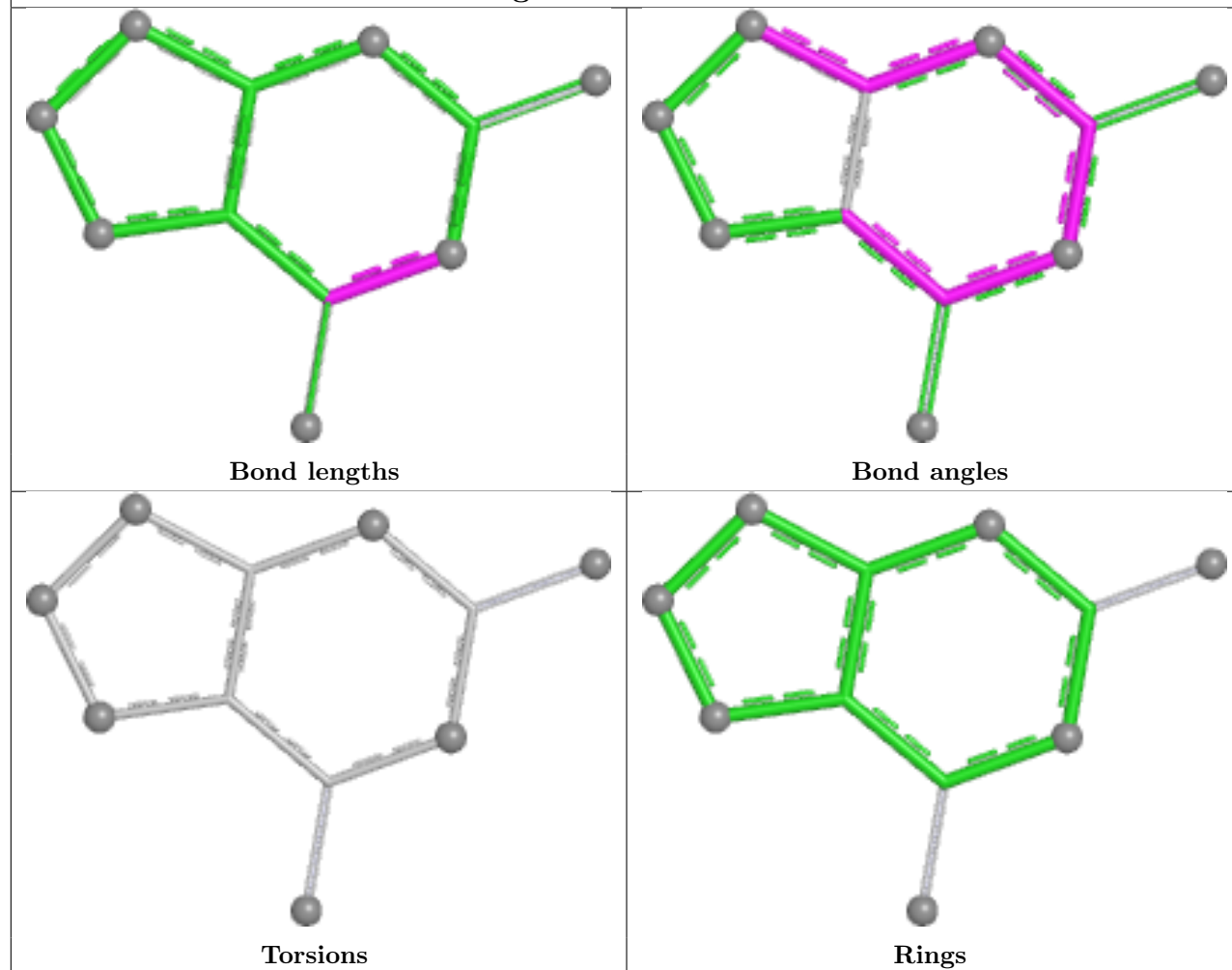
Continued from previous page...

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	D	402	OXY	1	0
4	B	404	MXE	2	0

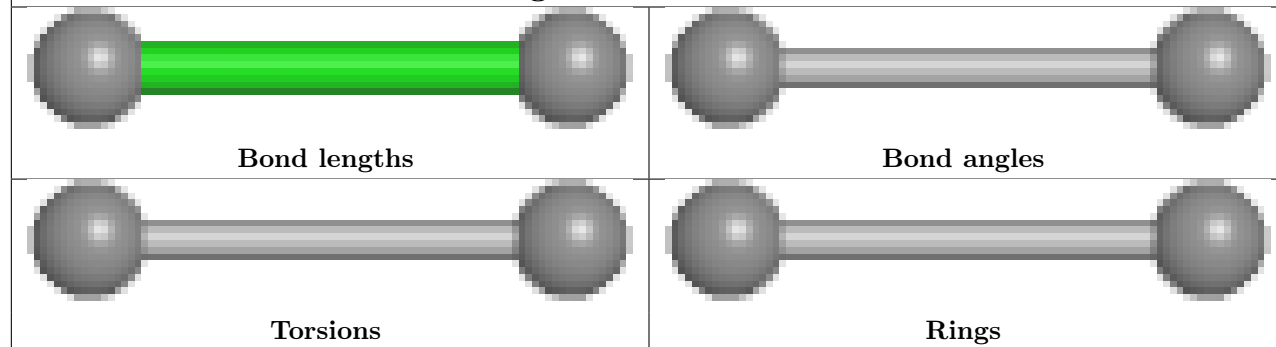
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



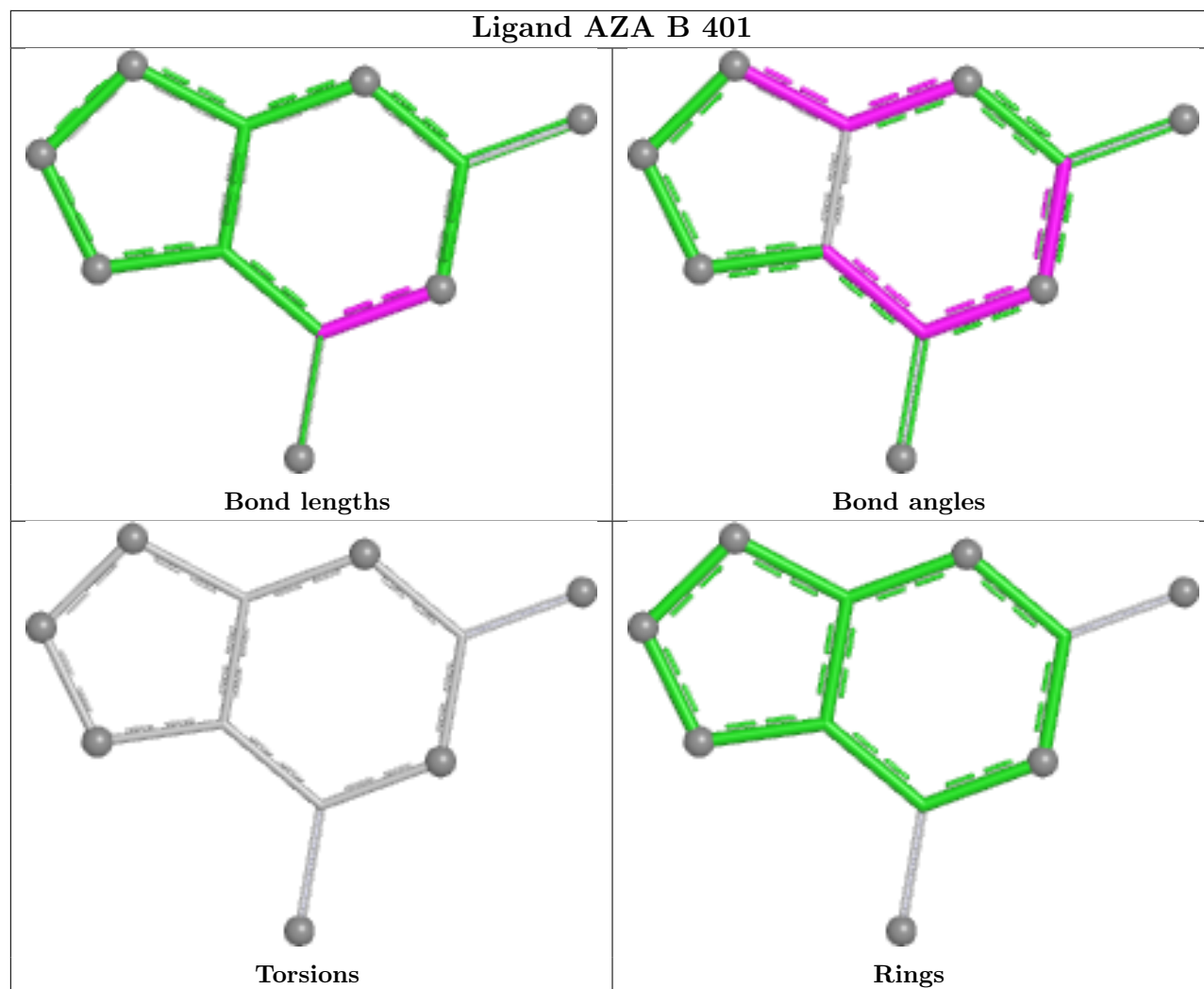
Ligand AZA A 401

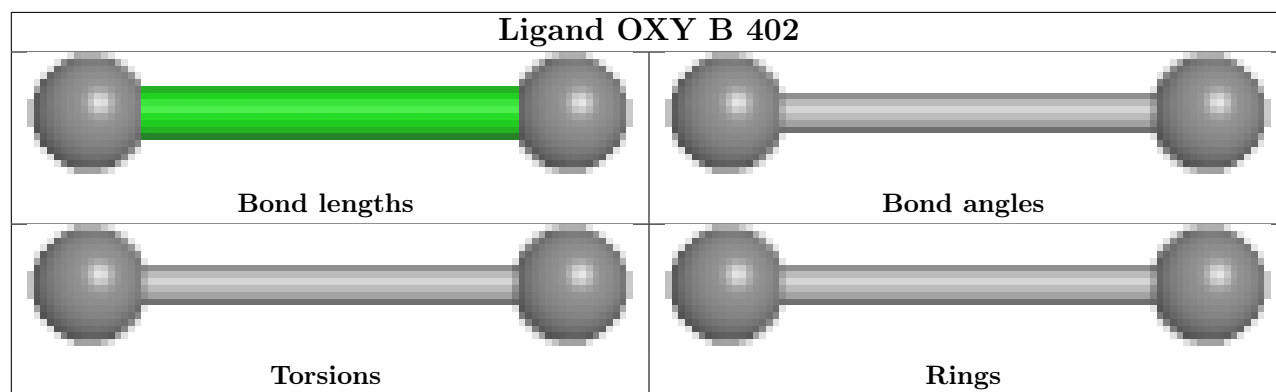
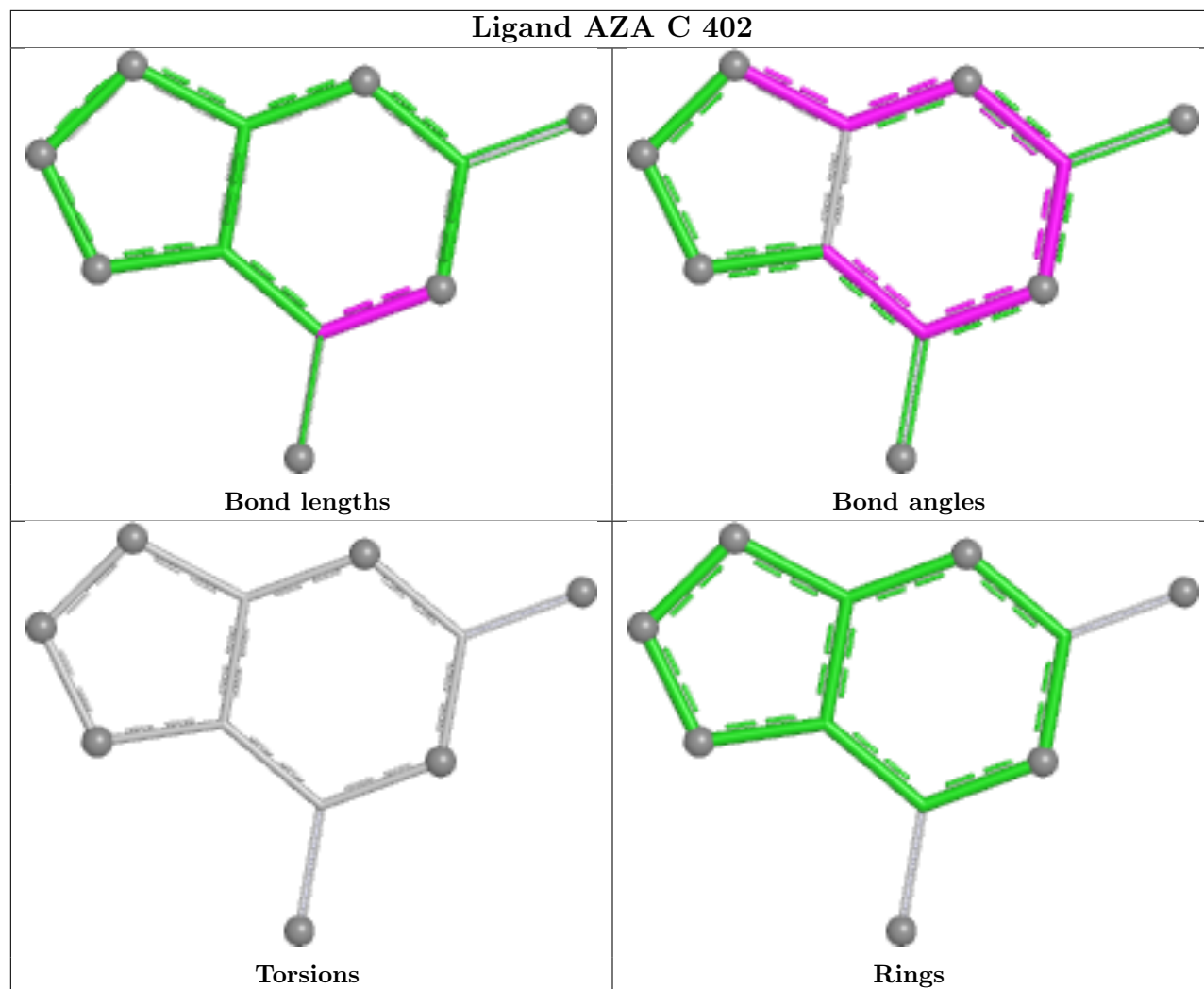


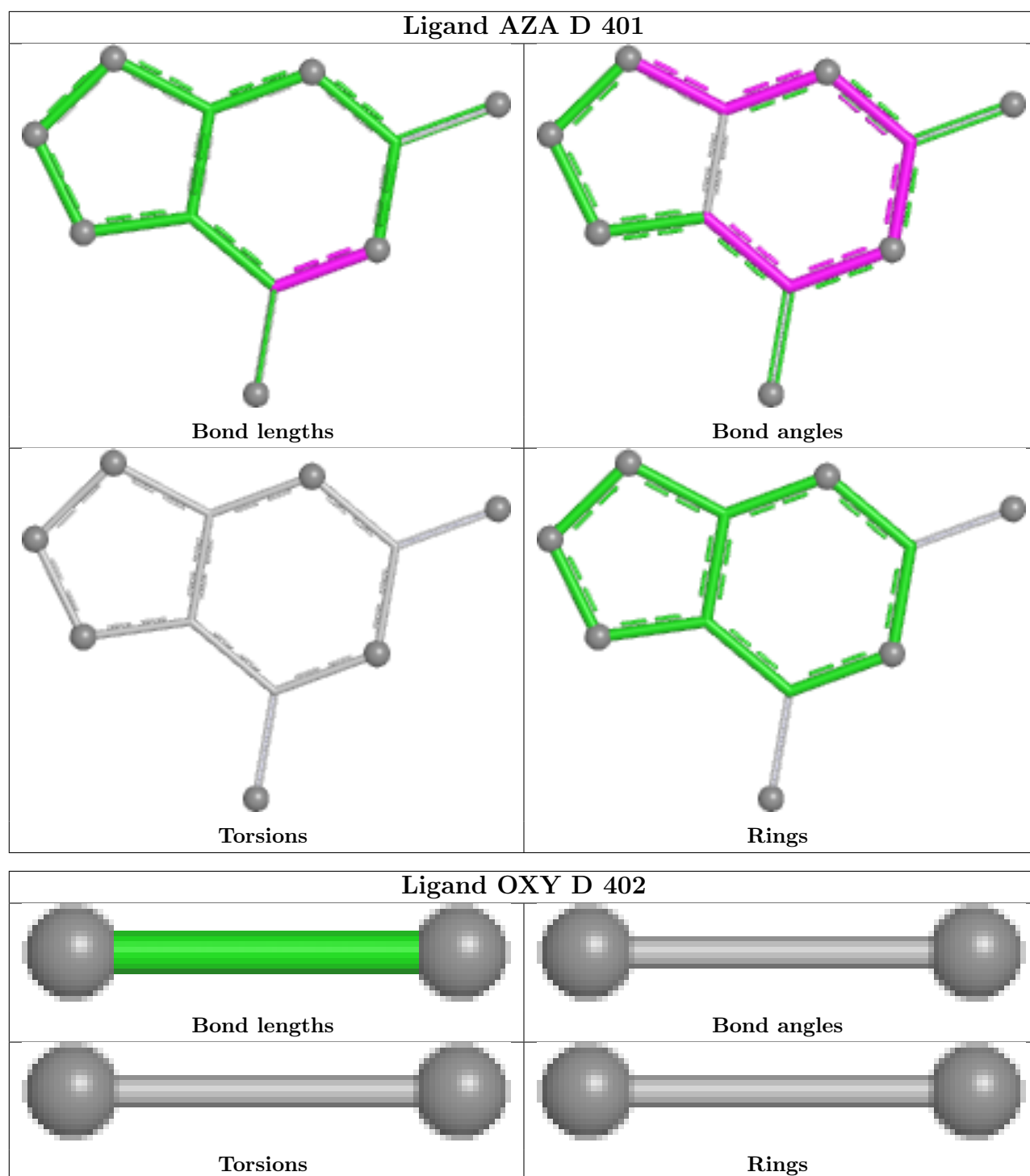
Ligand OXY C 403



Ligand AZA B 401







5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	302/312 (96%)	-0.26	5 (1%) 69 75	13, 20, 38, 65	1 (0%)
1	B	302/312 (96%)	-0.28	8 (2%) 57 65	10, 19, 35, 63	4 (1%)
1	C	302/312 (96%)	-0.32	1 (0%) 90 92	8, 18, 34, 53	2 (0%)
1	D	302/312 (96%)	-0.26	5 (1%) 69 75	9, 20, 38, 52	1 (0%)
All	All	1208/1248 (96%)	-0.28	19 (1%) 70 76	8, 19, 37, 65	8 (0%)

All (19) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	129	LYS	4.8
1	D	222	THR	4.2
1	A	130	ASN	3.3
1	A	131	GLY	3.3
1	B	291	GLY	3.3
1	B	286	ILE	2.9
1	B	288	GLU	2.8
1	D	29	VAL	2.8
1	B	283	VAL	2.8
1	C	10	TYR	2.6
1	D	288	GLU	2.6
1	D	126	PHE	2.3
1	A	222	THR	2.3
1	B	285	GLU	2.2
1	D	130	ASN	2.2
1	B	10	TYR	2.2
1	B	287	PRO	2.1
1	A	10	TYR	2.1
1	B	289	SER	2.0

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

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
1	OCS	A	305	9/10	0.88	0.18	20,30,54,60	0
1	OCS	B	305	9/10	0.90	0.15	16,21,50,51	0
1	OCS	D	305	9/10	0.91	0.15	18,25,55,57	0
1	OCS	C	305	9/10	0.92	0.17	15,24,55,57	0

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

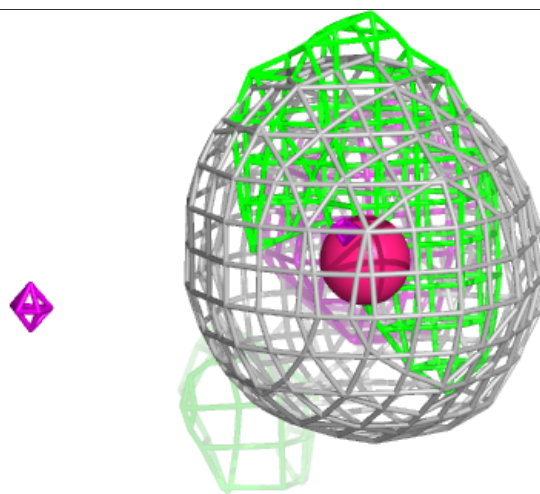
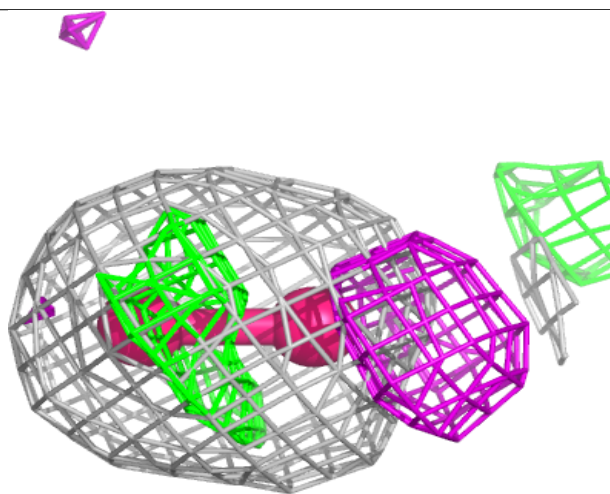
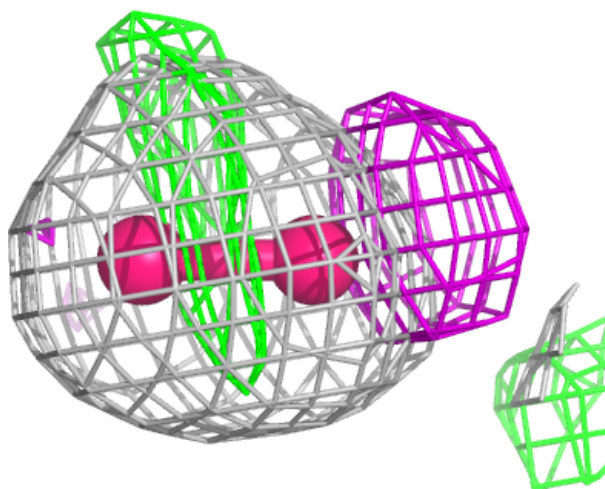
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
4	MXE	C	404	5/5	0.71	0.21	35,43,51,51	0
4	MXE	A	403	5/5	0.78	0.17	36,44,55,55	0
4	MXE	B	404	5/5	0.80	0.17	38,46,55,56	0
5	SO4	C	401	5/5	0.89	0.13	41,48,52,53	0
5	SO4	B	403	5/5	0.91	0.11	37,41,45,50	0
3	OXY	A	402	2/2	0.92	0.10	9,9,9,11	0
3	OXY	B	402	2/2	0.93	0.13	6,6,6,15	0
3	OXY	D	402	2/2	0.95	0.11	6,6,6,14	0
2	AZA	B	401	11/11	0.96	0.05	11,13,15,16	0
3	OXY	C	403	2/2	0.96	0.11	5,5,5,16	0
2	AZA	D	401	11/11	0.97	0.04	13,14,16,18	0
2	AZA	A	401	11/11	0.97	0.04	13,14,17,18	0
2	AZA	C	402	11/11	0.98	0.04	12,14,15,18	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.

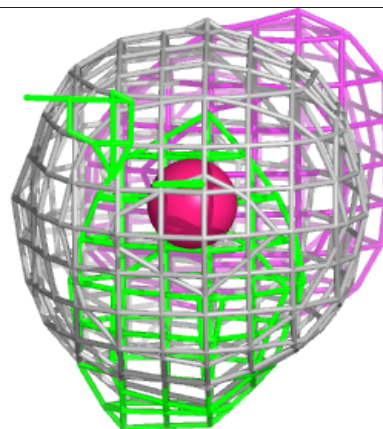
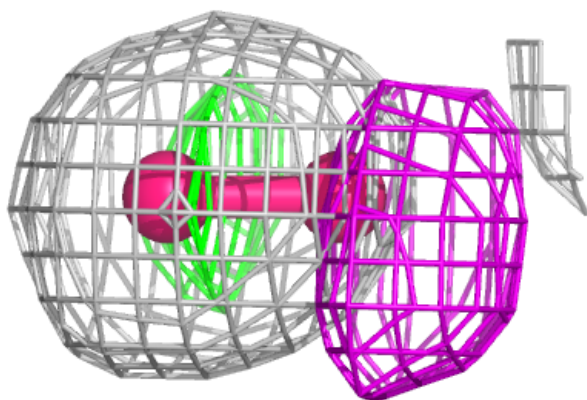
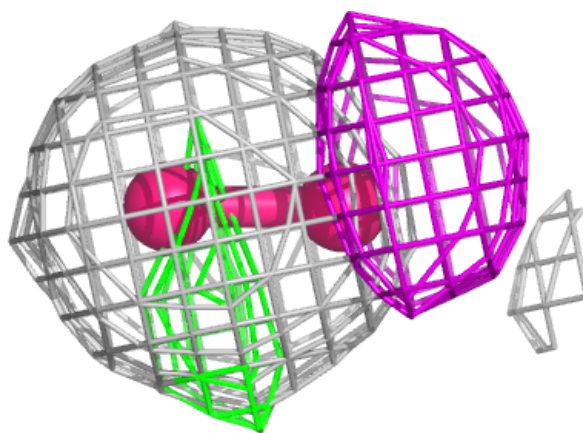
Electron density around OXY A 402:

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

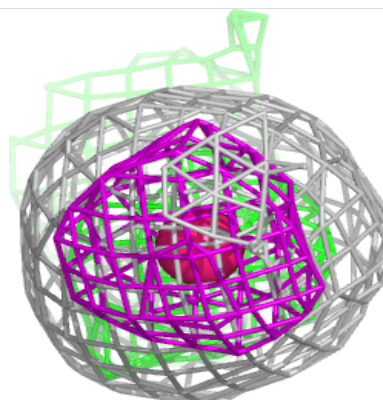
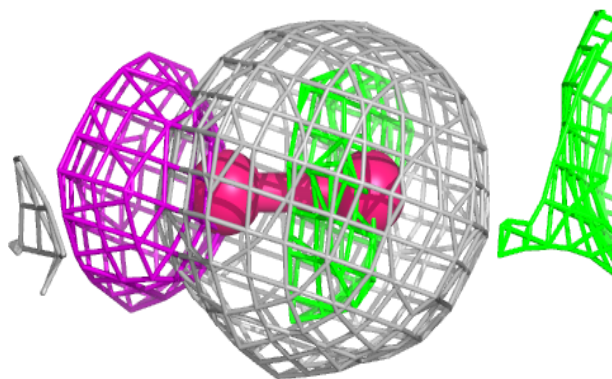
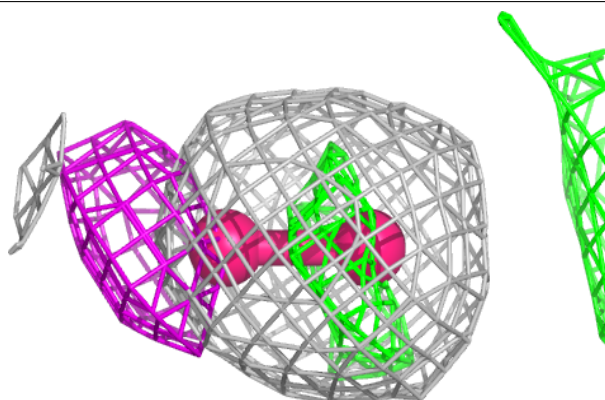


Electron density around OXY B 402:

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

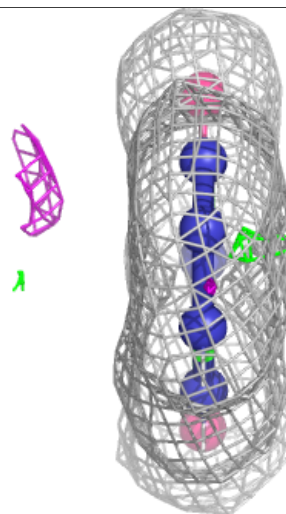
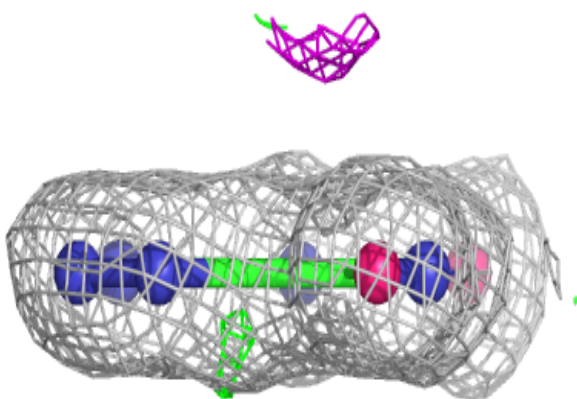
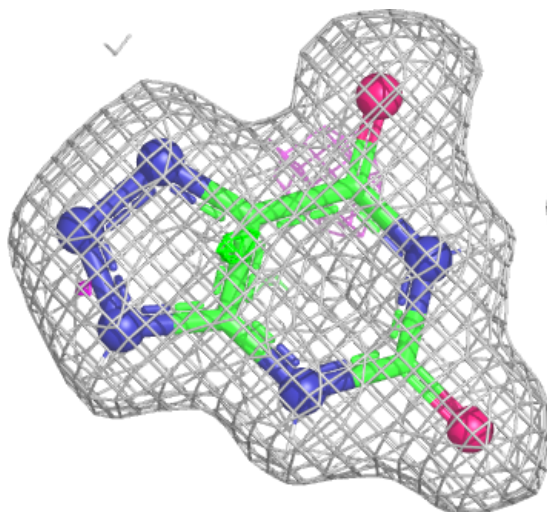
**Electron density around OXY D 402:**

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



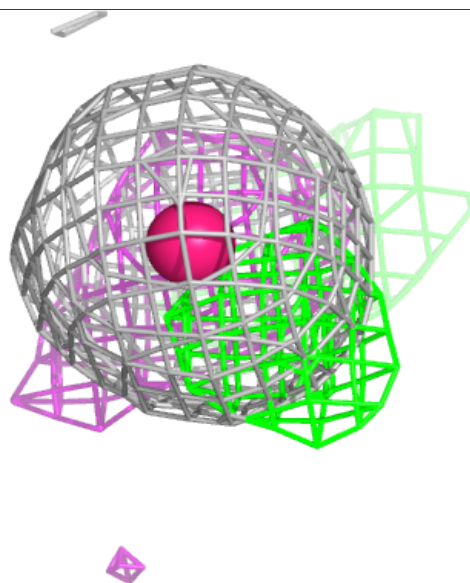
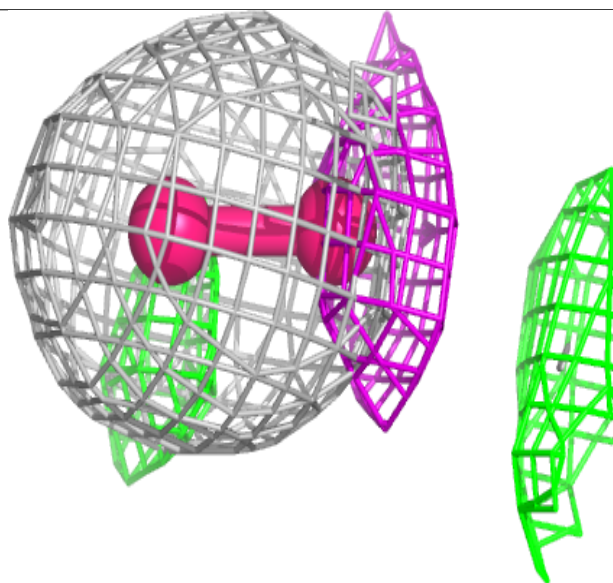
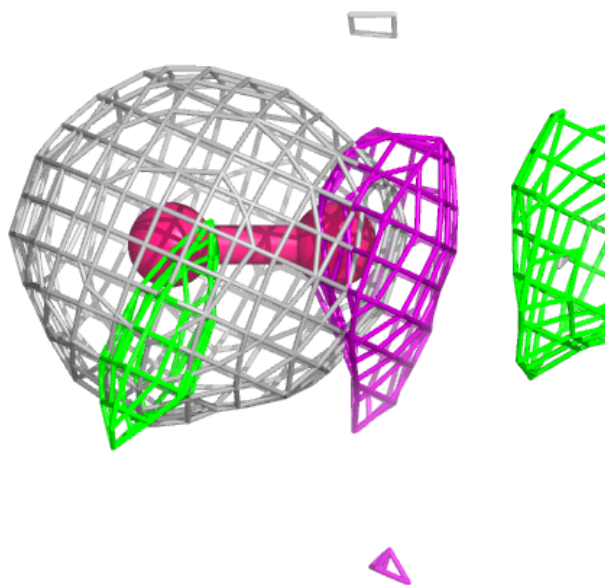
Electron density around AZA B 401:

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



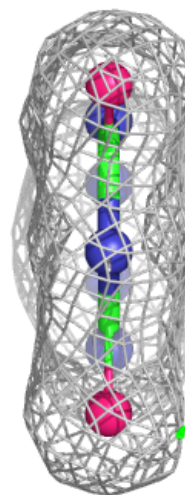
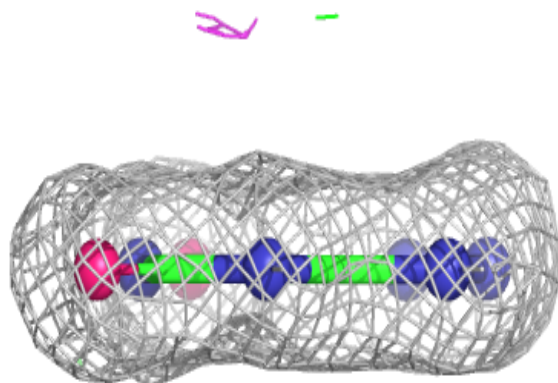
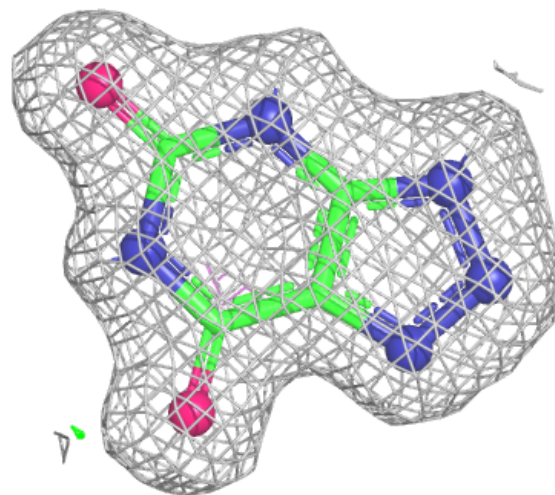
Electron density around OXY C 403:

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



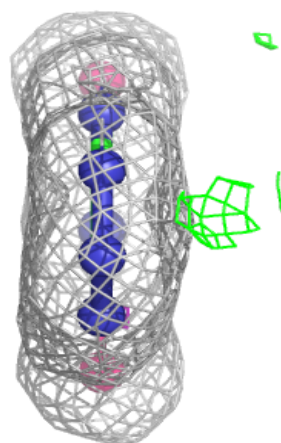
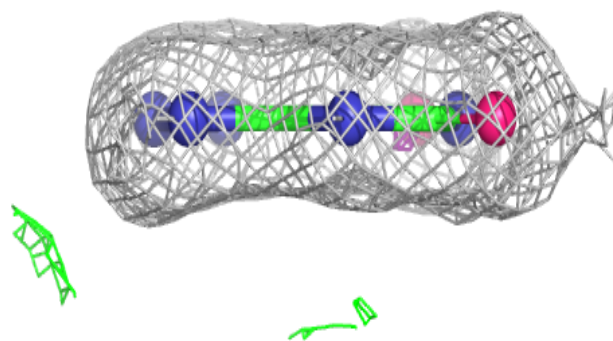
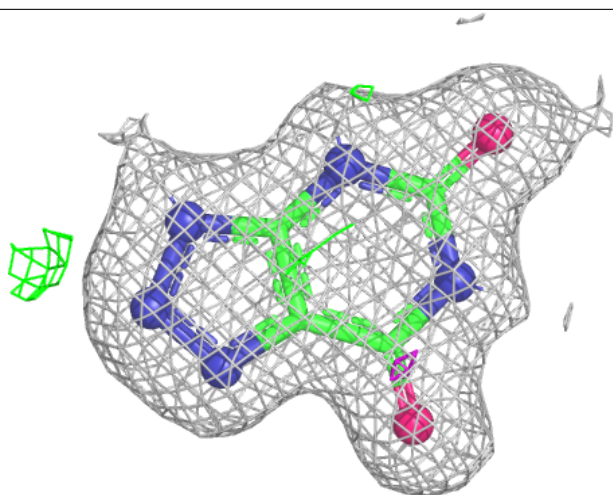
Electron density around AZA D 401:

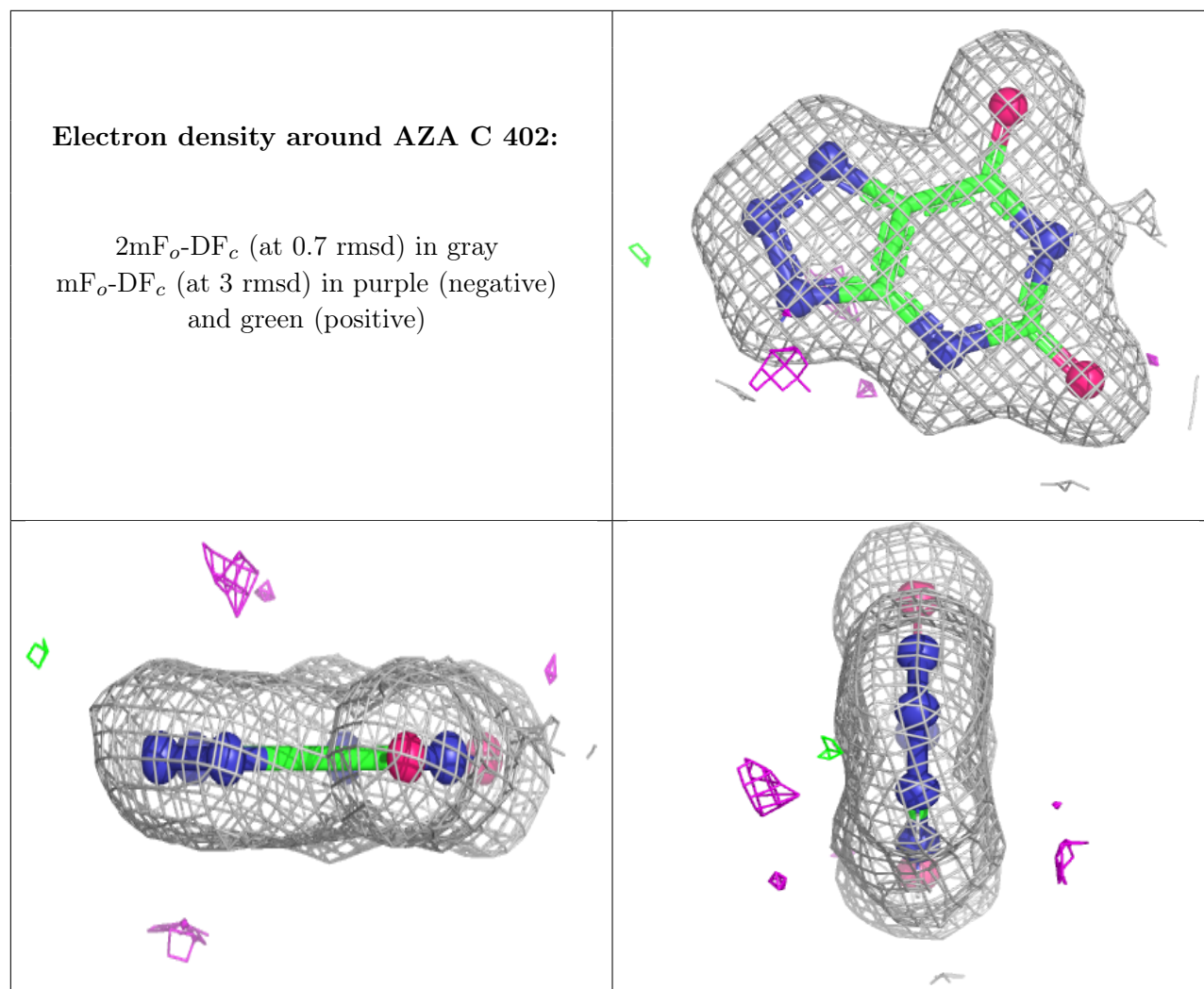
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around AZA 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)





6.5 Other polymers ⓘ

There are no such residues in this entry.