



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 9, 2026 – 12:09 PM UTC

PDB ID : 8OT8 / pdb_00008ot8
Title : Alditol oxidase from Actinomycetota bacterium in complex with D-xylulose
Authors : Rotilio, L.; Mattevi, A.
Deposited on : 2023-04-20
Resolution : 2.40 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

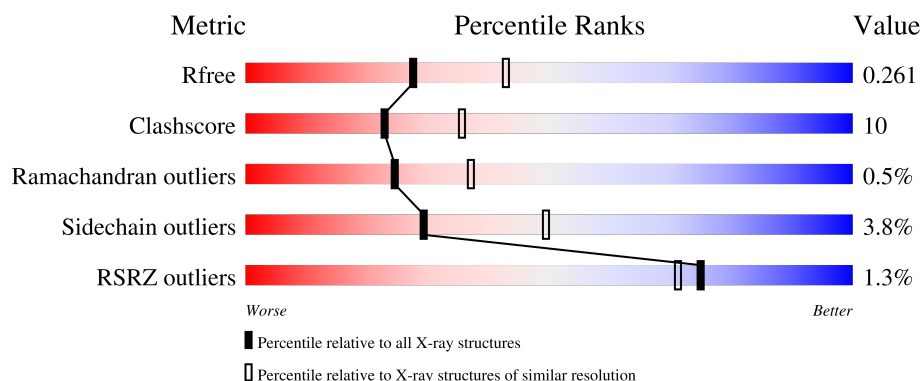
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.40 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	4912 (2.40-2.40)
Clashscore	190562	5391 (2.40-2.40)
Ramachandran outliers	187476	5320 (2.40-2.40)
Sidechain outliers	187428	5321 (2.40-2.40)
RSRZ outliers	180081	4916 (2.40-2.40)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	427	2% 75% 21% • •
1	B	427	2% 72% 23% • •
1	C	427	2% 77% 17% • 5%
1	D	427	2% 73% 20% • 7%

2 Entry composition i

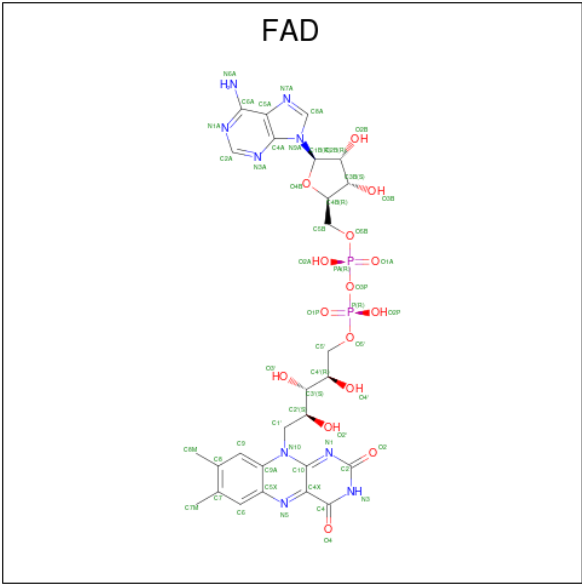
There are 4 unique types of molecules in this entry. The entry contains 12706 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 FAD-binding protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	412	Total	C	N	O	S	0	0	0
			3147	1990	574	576	7			
1	B	411	Total	C	N	O	S	0	0	0
			3138	1985	573	573	7			
1	C	405	Total	C	N	O	S	0	0	0
			3091	1959	564	561	7			
1	D	399	Total	C	N	O	S	0	0	0
			3034	1922	555	550	7			

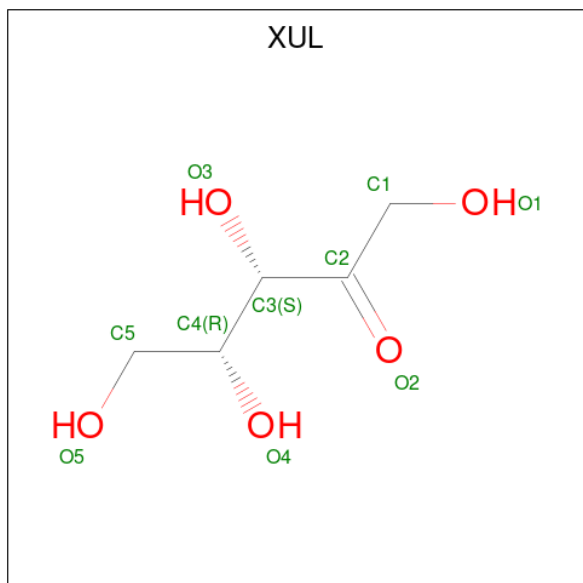
- Molecule 2 is FLAVIN-ADENINE DINUCLEOTIDE (CCD ID: FAD) (formula: C₂₇H₃₃N₉O₁₅P₂) (labeled as "Ligand of Interest" by depositor).



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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	C	1	Total	C	N	O	P	0	0
			53	27	9	15	2		
2	D	1	Total	C	N	O	P	0	0
			53	27	9	15	2		

- Molecule 3 is D-XYLULOSE (CCD ID: XUL) (formula: $C_5H_{10}O_5$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			10	5	5		
3	B	1	Total	C	O	0	0
			10	5	5		
3	C	1	Total	C	O	0	0
			10	5	5		
3	D	1	Total	C	O	0	0
			10	5	5		

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	13	Total	O	0	0
			13	13		
4	B	10	Total	O	0	0
			10	10		
4	C	9	Total	O	0	0
			9	9		

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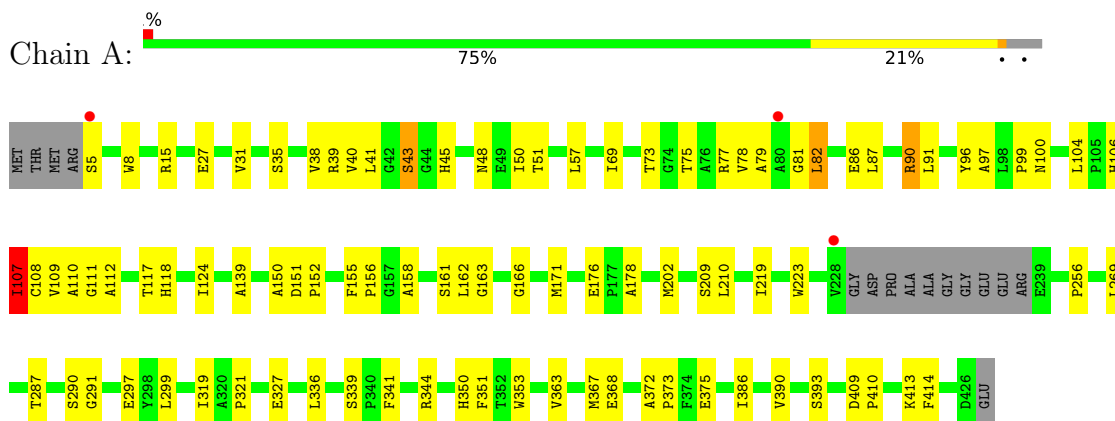
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	D	12	Total	O	0	0
			12	12		

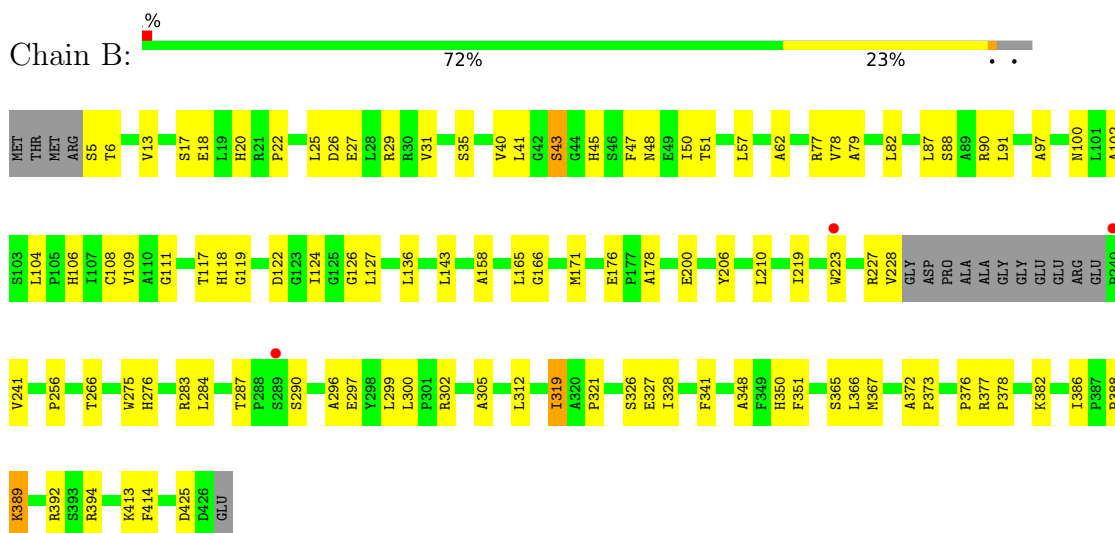
3 Residue-property plots [i](#)

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.

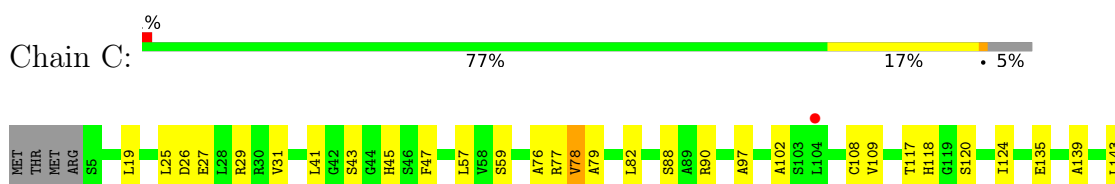
- Molecule 1: FAD-binding protein

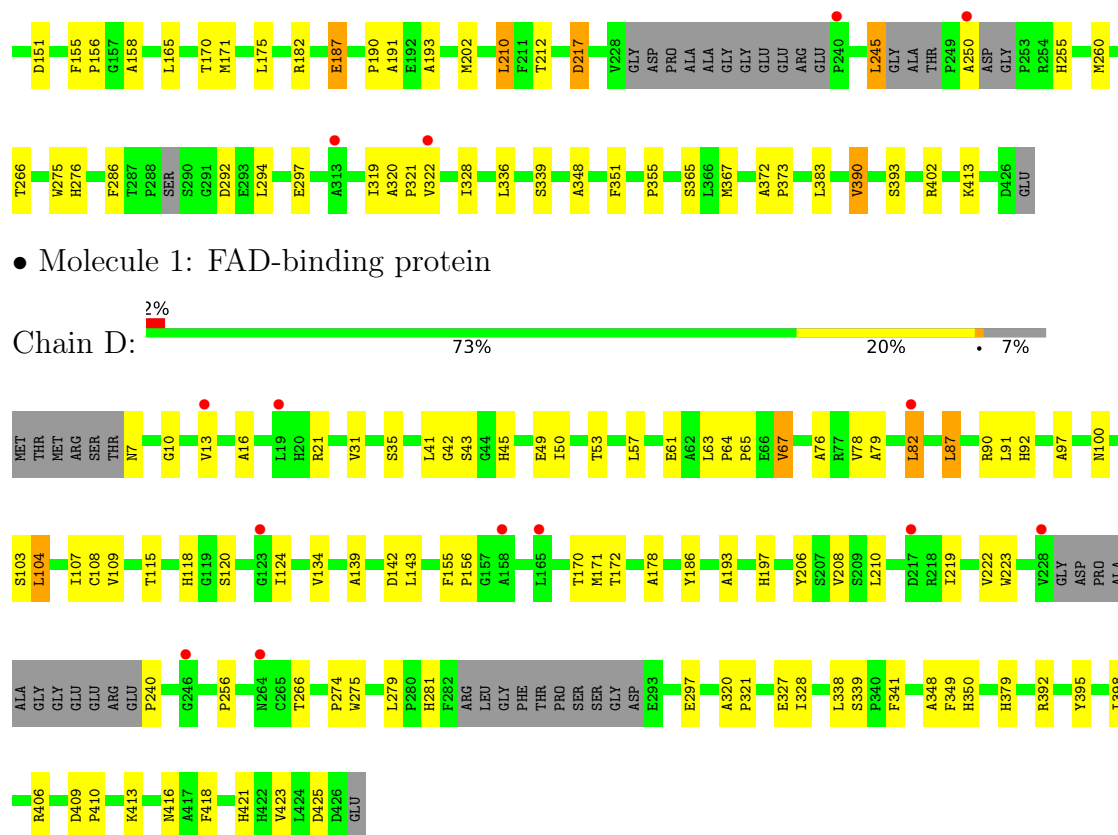


- Molecule 1: FAD-binding protein



- Molecule 1: FAD-binding protein





● Molecule 1: FAD-binding protein

Chain D: 2% 73% 20% 7%

4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	56.44Å 109.91Å 296.71Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.55 – 2.40 49.55 – 2.40	Depositor EDS
% Data completeness (in resolution range)	99.7 (49.55-2.40) 99.7 (49.55-2.40)	Depositor EDS
R_{merge}	0.17	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.47 (at 2.39Å)	Xtriage
Refinement program	REFMAC 5.8.0267	Depositor
R, R_{free}	0.246 , 0.289 (Not available) , 0.261	Depositor DCC
R_{free} test set	3656 reflections (4.98%)	wwPDB-VP
Wilson B-factor (Å ²)	49.0	Xtriage
Anisotropy	0.911	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 34.3	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	12706	wwPDB-VP
Average B, all atoms (Å ²)	72.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.62% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: FAD, XUL

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	1.10	1/3229 (0.0%)	1.47	7/4407 (0.2%)
1	B	1.12	0/3220	1.47	2/4394 (0.0%)
1	C	1.07	0/3170	1.42	1/4321 (0.0%)
1	D	1.09	0/3113	1.45	0/4249
All	All	1.09	1/12732 (0.0%)	1.45	10/17371 (0.1%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	D	0	1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	375	GLU	N-CA	5.08	1.50	1.46

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	81	GLY	CA-C-N	6.24	129.69	120.90
1	A	81	GLY	C-N-CA	6.24	129.69	120.90
1	A	107	ILE	CA-C-N	5.84	129.06	120.82
1	A	107	ILE	C-N-CA	5.84	129.06	120.82
1	A	112	ALA	CA-C-O	-5.74	114.76	121.07
1	A	290	SER	CA-C-N	5.47	126.29	121.58
1	A	290	SER	C-N-CA	5.47	126.29	121.58
1	B	200	GLU	CA-C-N	5.34	127.24	120.72

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	200	GLU	C-N-CA	5.34	127.24	120.72
1	C	59	SER	CA-C-O	-5.16	116.20	121.87

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	D	42	GLY	Peptide

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	3147	0	3091	82	0
1	B	3138	0	3086	69	0
1	C	3091	0	3034	50	0
1	D	3034	0	2971	59	0
2	A	53	0	31	12	0
2	B	53	0	31	12	0
2	C	53	0	31	9	0
2	D	53	0	31	7	0
3	A	10	0	10	0	0
3	B	10	0	10	1	0
3	C	10	0	10	0	0
3	D	10	0	10	2	0
4	A	13	0	0	1	0
4	B	10	0	0	0	0
4	C	9	0	0	0	0
4	D	12	0	0	2	0
All	All	12706	0	12346	259	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 10.

All (259) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:45:HIS:ND1	2:A:501:FAD:HM83	1.74	1.03
1:B:45:HIS:ND1	2:B:501:FAD:HM83	1.76	1.01
1:C:45:HIS:ND1	2:C:501:FAD:C8M	2.28	0.96
1:A:45:HIS:ND1	2:A:501:FAD:C8M	2.30	0.93
1:C:45:HIS:ND1	2:C:501:FAD:HM83	1.86	0.90
1:A:41:LEU:HB2	1:A:57:LEU:HD22	1.53	0.90
1:A:90:ARG:HD2	4:A:604:HOH:O	1.71	0.90
1:B:45:HIS:ND1	2:B:501:FAD:C8M	2.35	0.89
1:C:109:VAL:HG12	1:C:171:MET:CE	2.07	0.84
1:A:35:SER:O	1:A:413:LYS:HD2	1.78	0.83
1:D:45:HIS:ND1	2:D:501:FAD:HM83	1.95	0.81
1:D:45:HIS:ND1	2:D:501:FAD:C8M	2.47	0.77
1:C:109:VAL:HG12	1:C:171:MET:HE1	1.68	0.75
1:C:294:LEU:HD13	1:C:355:PRO:HA	1.68	0.75
1:A:351:PHE:CE1	1:A:367:MET:HE1	2.23	0.73
1:B:351:PHE:CE2	1:B:367:MET:HE1	2.25	0.72
1:C:45:HIS:ND1	2:C:501:FAD:HM81	2.05	0.71
1:C:351:PHE:CE1	1:C:367:MET:HE1	2.27	0.70
1:D:31:VAL:O	1:D:35:SER:OG	2.06	0.70
1:A:104:LEU:HD21	1:A:107:ILE:CD1	2.22	0.69
1:D:35:SER:O	1:D:413:LYS:HD2	1.93	0.68
1:A:79:ALA:O	1:A:82:LEU:HB2	1.94	0.68
1:A:287:THR:HG22	1:A:287:THR:O	1.93	0.68
1:D:41:LEU:HB2	1:D:57:LEU:HD12	1.75	0.68
1:A:27:GLU:O	1:A:31:VAL:HG23	1.94	0.67
1:C:117:THR:HG23	2:C:501:FAD:C2	2.25	0.67
1:D:21:ARG:NH1	1:D:61:GLU:OE2	2.28	0.67
1:D:109:VAL:HG12	1:D:171:MET:HE1	1.77	0.66
1:D:406:ARG:HD2	4:D:608:HOH:O	1.94	0.66
1:B:41:LEU:HB2	1:B:57:LEU:HD22	1.77	0.66
1:B:35:SER:O	1:B:413:LYS:HD2	1.97	0.65
1:D:41:LEU:HB2	1:D:57:LEU:CD1	2.27	0.65
1:A:43:SER:HB3	2:A:501:FAD:O2P	1.96	0.65
1:D:7:ASN:O	1:D:10:GLY:N	2.30	0.65
1:A:158:ALA:O	1:A:161:SER:HB3	1.98	0.64
1:D:338:LEU:HD21	1:D:398:ILE:HD12	1.78	0.64
1:C:109:VAL:HG12	1:C:171:MET:HE3	1.78	0.63
1:A:109:VAL:HG12	1:A:171:MET:HE3	1.79	0.63
1:D:100:ASN:HA	1:D:279:LEU:HD23	1.80	0.62
1:A:38:VAL:HG11	1:A:414:PHE:CZ	2.34	0.62
1:A:109:VAL:HG12	1:A:171:MET:CE	2.30	0.62
1:D:134:VAL:HG12	1:D:171:MET:HG2	1.82	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:104:LEU:CD2	1:A:107:ILE:HD13	2.30	0.61
1:A:111:GLY:HA3	2:A:501:FAD:O1P	2.01	0.61
1:B:312:LEU:HD21	1:B:367:MET:HE3	1.82	0.60
1:C:117:THR:HA	2:C:501:FAD:O2	2.02	0.60
1:C:328:ILE:HA	1:C:348:ALA:O	2.03	0.59
1:B:372:ALA:HB3	1:B:373:PRO:HD3	1.84	0.59
1:A:40:VAL:HG11	2:A:501:FAD:C5A	2.32	0.59
1:B:176:GLU:OE1	1:B:227:ARG:NH2	2.32	0.58
1:B:223:TRP:CZ2	1:B:256:PRO:HD3	2.38	0.58
1:A:202:MET:CE	1:A:210:LEU:HD21	2.34	0.57
1:A:104:LEU:HD21	1:A:107:ILE:HD13	1.85	0.57
1:D:109:VAL:HG12	1:D:171:MET:CE	2.34	0.57
1:A:45:HIS:ND1	2:A:501:FAD:HM81	2.18	0.57
1:C:202:MET:HE1	1:C:210:LEU:HD13	1.87	0.56
1:C:47:PHE:HZ	2:C:501:FAD:HM82	1.71	0.56
1:D:79:ALA:O	1:D:82:LEU:HB2	2.06	0.56
1:A:390:VAL:O	1:A:393:SER:OG	2.20	0.56
1:A:45:HIS:O	2:A:501:FAD:O3'	2.12	0.56
1:A:118:HIS:HE2	1:A:297:GLU:CD	2.12	0.56
1:C:255:HIS:ND1	1:C:260:MET:HB2	2.22	0.55
1:C:191:ALA:HB3	1:C:217:ASP:OD2	2.05	0.55
1:D:108:CYS:HB3	2:D:501:FAD:O1P	2.07	0.55
1:A:39:ARG:NH1	1:A:163:GLY:O	2.40	0.55
1:B:97:ALA:HB2	1:B:178:ALA:HA	1.88	0.55
1:C:45:HIS:CE1	2:C:501:FAD:HM83	2.42	0.55
1:D:124:ILE:HD11	1:D:206:TYR:CZ	2.41	0.55
1:D:240:PRO:N	4:D:601:HOH:O	2.39	0.55
1:A:363:VAL:O	1:A:367:MET:HG3	2.07	0.54
1:D:210:LEU:HB2	1:D:328:ILE:HB	1.90	0.54
1:B:100:ASN:ND2	1:B:119:GLY:HA3	2.23	0.54
1:C:202:MET:HE2	1:C:202:MET:HA	1.90	0.54
1:A:202:MET:HE1	1:A:210:LEU:CD2	2.38	0.54
1:C:390:VAL:O	1:C:393:SER:OG	2.20	0.54
1:C:47:PHE:CZ	2:C:501:FAD:HM82	2.41	0.53
1:B:166:GLY:HA2	1:B:414:PHE:CZ	2.43	0.53
1:D:350:HIS:NE2	3:D:502:XUL:H11	2.23	0.53
1:C:319:ILE:C	1:C:321:PRO:HD2	2.33	0.53
1:A:202:MET:HE1	1:A:210:LEU:HD21	1.89	0.53
1:B:109:VAL:HG12	1:B:171:MET:CE	2.39	0.53
1:B:51:THR:OG1	2:B:501:FAD:H3B	2.09	0.53
1:B:106:HIS:CE1	1:B:284:LEU:O	2.61	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:296:ALA:HA	1:B:382:LYS:HB3	1.91	0.53
1:B:43:SER:HB3	2:B:501:FAD:O2P	2.09	0.52
1:B:124:ILE:HD11	1:B:206:TYR:CZ	2.44	0.52
1:D:50:ILE:HG13	1:D:418:PHE:CD2	2.44	0.52
1:B:79:ALA:O	1:B:82:LEU:HB2	2.09	0.52
1:B:102:ALA:HB1	2:B:501:FAD:C4	2.39	0.52
1:B:122:ASP:OD1	1:B:302:ARG:NH1	2.28	0.52
1:A:43:SER:CB	2:A:501:FAD:O2P	2.58	0.52
1:A:162:LEU:N	1:A:162:LEU:HD12	2.25	0.52
1:B:117:THR:HG22	1:B:127:LEU:HD12	1.91	0.52
1:A:166:GLY:HA2	1:A:414:PHE:CE1	2.46	0.51
1:C:202:MET:HE1	1:C:210:LEU:CD1	2.39	0.51
1:B:166:GLY:HA2	1:B:414:PHE:CE1	2.45	0.51
1:C:79:ALA:O	1:C:82:LEU:HB2	2.11	0.51
1:B:228:VAL:HG12	1:B:228:VAL:O	2.11	0.51
1:B:104:LEU:HD22	2:B:501:FAD:H6	1.92	0.51
1:B:300:LEU:HD11	1:B:376:PRO:HB3	1.93	0.51
1:D:104:LEU:HD22	2:D:501:FAD:C6	2.40	0.51
1:D:45:HIS:ND1	2:D:501:FAD:HM81	2.26	0.50
1:D:115:THR:OG1	2:D:501:FAD:O4'	2.03	0.50
1:A:104:LEU:HD21	1:A:107:ILE:HD11	1.90	0.50
1:B:40:VAL:HG11	2:B:501:FAD:C5A	2.41	0.50
1:C:27:GLU:O	1:C:31:VAL:HG23	2.10	0.50
1:A:51:THR:OG1	2:A:501:FAD:H3B	2.11	0.50
1:A:368:GLU:CD	1:A:386:ILE:HG13	2.37	0.50
1:B:18:GLU:HB2	1:B:20:HIS:CE1	2.47	0.49
1:C:108:CYS:HB3	2:C:501:FAD:O1P	2.11	0.49
1:A:38:VAL:HG12	1:A:413:LYS:HG2	1.94	0.49
1:B:312:LEU:CD2	1:B:367:MET:HE3	2.42	0.49
1:B:118:HIS:NE2	1:B:297:GLU:OE1	2.45	0.49
1:C:97:ALA:HA	1:C:275:TRP:CZ2	2.47	0.49
1:B:43:SER:CB	2:B:501:FAD:O2P	2.60	0.49
1:B:48:ASN:OD1	1:B:50:ILE:HB	2.12	0.49
1:B:87:LEU:O	1:B:91:LEU:HG	2.13	0.49
1:D:392:ARG:NH2	1:D:421:HIS:O	2.44	0.49
1:C:120:SER:O	1:C:124:ILE:HD11	2.13	0.49
1:D:297:GLU:HB3	1:D:379:HIS:HB2	1.94	0.49
1:D:53:THR:HG22	1:D:57:LEU:CD2	2.43	0.49
1:B:104:LEU:HD22	2:B:501:FAD:C6	2.43	0.48
1:D:223:TRP:CZ2	1:D:256:PRO:HD3	2.48	0.48
1:D:16:ALA:HB2	1:D:57:LEU:HD23	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:97:ALA:HA	1:D:275:TRP:CZ2	2.49	0.48
1:B:210:LEU:HB2	1:B:328:ILE:HB	1.96	0.48
1:C:292:ASP:OD1	1:C:355:PRO:HG3	2.14	0.47
1:A:87:LEU:HD11	1:A:91:LEU:HD11	1.97	0.47
1:B:27:GLU:O	1:B:31:VAL:HG23	2.13	0.47
1:C:25:LEU:O	1:C:29:ARG:HG3	2.14	0.47
1:A:97:ALA:HB2	1:A:178:ALA:HA	1.96	0.47
1:C:109:VAL:CG1	1:C:171:MET:HE3	2.45	0.47
1:A:40:VAL:HG11	2:A:501:FAD:C6A	2.45	0.47
1:B:319:ILE:C	1:B:321:PRO:HD2	2.40	0.47
1:B:111:GLY:HA2	2:B:501:FAD:O4B	2.14	0.47
1:D:97:ALA:HB2	1:D:178:ALA:HA	1.97	0.47
1:A:38:VAL:HG11	1:A:414:PHE:CE1	2.50	0.47
1:B:25:LEU:O	1:B:29:ARG:HG3	2.15	0.47
1:B:367:MET:HE2	1:B:367:MET:HB3	1.85	0.47
1:D:339:SER:O	1:D:395:TYR:HE1	1.98	0.47
1:B:327:GLU:OE1	3:B:502:XUL:O2	2.33	0.47
1:A:223:TRP:CZ2	1:A:256:PRO:HD3	2.49	0.46
1:D:78:VAL:O	1:D:170:THR:HA	2.14	0.46
1:C:77:ARG:NH2	1:C:135:GLU:OE2	2.48	0.46
1:A:166:GLY:HA2	1:A:414:PHE:CZ	2.50	0.46
1:B:219:ILE:O	1:B:219:ILE:HG22	2.15	0.46
1:D:398:ILE:HD11	1:D:423:VAL:HG13	1.96	0.46
1:C:43:SER:OG	1:C:108:CYS:N	2.49	0.46
1:C:294:LEU:HD23	1:C:383:LEU:HD11	1.98	0.46
1:D:155:PHE:N	1:D:156:PRO:CD	2.79	0.46
1:B:109:VAL:HG12	1:B:171:MET:HE1	1.98	0.45
1:C:155:PHE:N	1:C:156:PRO:CD	2.80	0.45
1:D:50:ILE:O	1:D:416:ASN:ND2	2.49	0.45
1:A:117:THR:HG23	2:A:501:FAD:C2	2.46	0.45
1:C:41:LEU:HB2	1:C:57:LEU:HD22	1.99	0.45
1:B:299:LEU:HD12	1:B:377:ARG:O	2.15	0.45
1:A:86:GLU:OE1	1:B:283:ARG:NH1	2.50	0.45
1:B:43:SER:HB2	1:B:108:CYS:H	1.82	0.45
1:D:67:VAL:HG21	1:D:90:ARG:HG2	1.97	0.45
1:D:120:SER:OG	1:D:208:VAL:O	2.34	0.45
1:A:155:PHE:HB3	1:A:156:PRO:HD3	1.98	0.45
1:B:136:LEU:O	1:B:136:LEU:HD12	2.17	0.45
1:A:110:ALA:HA	1:A:171:MET:HE1	1.99	0.44
1:B:109:VAL:C	1:B:171:MET:HE1	2.42	0.44
1:D:328:ILE:HA	1:D:348:ALA:O	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:155:PHE:N	1:A:156:PRO:CD	2.80	0.44
1:A:368:GLU:OE2	1:A:386:ILE:HG13	2.17	0.44
1:B:328:ILE:HA	1:B:348:ALA:O	2.18	0.44
1:B:378:PRO:HD3	1:B:386:ILE:HD12	1.99	0.44
1:D:392:ARG:NH1	1:D:425:ASP:O	2.48	0.44
1:A:8:TRP:CZ3	1:A:291:GLY:HA3	2.53	0.44
1:A:139:ALA:HB1	1:A:413:LYS:HE2	2.00	0.44
1:D:92:HIS:CE1	1:D:274:PRO:HB3	2.53	0.44
1:B:299:LEU:HD22	1:B:341:PHE:CE1	2.52	0.44
1:B:351:PHE:CZ	1:B:367:MET:HE1	2.51	0.44
1:D:409:ASP:N	1:D:410:PRO:HD3	2.33	0.44
1:B:106:HIS:CE1	1:B:287:THR:HG22	2.53	0.44
1:B:158:ALA:HA	1:B:165:LEU:CD1	2.47	0.44
1:D:186:TYR:HB2	1:D:222:VAL:HG13	2.00	0.44
1:A:336:LEU:HB2	1:A:339:SER:HB2	2.00	0.43
1:A:372:ALA:N	1:A:373:PRO:CD	2.82	0.43
1:C:57:LEU:HD23	1:C:57:LEU:HA	1.82	0.43
1:D:21:ARG:HH12	1:D:61:GLU:CD	2.25	0.43
1:A:106:HIS:CD2	1:A:287:THR:HA	2.54	0.43
1:A:202:MET:HE1	1:A:210:LEU:HG	1.99	0.43
1:A:299:LEU:CD2	1:A:341:PHE:CE1	3.01	0.43
1:A:351:PHE:CZ	1:A:367:MET:HE1	2.53	0.43
1:D:43:SER:O	2:D:501:FAD:O2A	2.35	0.43
1:D:76:ALA:O	1:D:172:THR:HA	2.19	0.43
1:D:328:ILE:HG12	1:D:349:PHE:CD1	2.54	0.43
1:A:299:LEU:HD22	1:A:341:PHE:CE1	2.53	0.43
1:D:327:GLU:OE1	3:D:502:XUL:H3	2.19	0.43
1:B:376:PRO:HD2	1:B:394:ARG:CZ	2.48	0.43
1:A:38:VAL:HG13	1:A:414:PHE:CD2	2.52	0.43
1:A:99:PRO:HB3	1:A:176:GLU:OE2	2.19	0.42
1:A:269:LEU:CD1	1:A:269:LEU:N	2.82	0.42
1:A:351:PHE:CB	1:A:353:TRP:CZ2	3.02	0.42
1:B:109:VAL:HG12	1:B:171:MET:HE3	2.00	0.42
1:C:320:ALA:N	1:C:321:PRO:CD	2.81	0.42
1:A:43:SER:HB2	1:A:108:CYS:H	1.84	0.42
1:C:88:SER:HB3	1:C:276:HIS:CB	2.49	0.42
1:B:88:SER:HB3	1:B:276:HIS:CB	2.49	0.42
1:D:103:SER:O	1:D:281:HIS:N	2.53	0.42
1:D:210:LEU:HD23	1:D:222:VAL:HG23	2.00	0.42
1:B:124:ILE:HD11	1:B:206:TYR:CE2	2.53	0.42
1:C:187:GLU:OE1	1:C:250:ALA:HA	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:320:ALA:N	1:D:321:PRO:CD	2.82	0.42
1:A:73:THR:O	1:A:75:THR:HG23	2.20	0.42
1:D:87:LEU:HD13	1:D:91:LEU:HD12	2.01	0.42
1:A:109:VAL:C	1:A:171:MET:HE1	2.45	0.42
1:C:76:ALA:HB2	1:C:175:LEU:HD11	2.02	0.42
1:B:388:PRO:O	1:B:389:LYS:C	2.63	0.42
1:C:29:ARG:HD2	1:C:143:LEU:HD21	2.01	0.42
1:C:294:LEU:CD1	1:C:355:PRO:HA	2.42	0.42
1:A:209:SER:OG	1:A:327:GLU:OE2	2.36	0.42
1:A:319:ILE:C	1:A:321:PRO:HD2	2.45	0.42
1:C:336:LEU:HB2	1:C:339:SER:HB2	2.01	0.41
1:D:142:ASP:OD1	1:D:142:ASP:N	2.53	0.41
1:A:39:ARG:NH2	1:A:162:LEU:O	2.50	0.41
1:A:110:ALA:N	1:A:171:MET:HE1	2.35	0.41
1:A:162:LEU:N	1:A:162:LEU:CD1	2.82	0.41
1:A:269:LEU:N	1:A:269:LEU:HD12	2.35	0.41
1:B:47:PHE:CZ	2:B:501:FAD:HM82	2.56	0.41
1:B:47:PHE:HZ	2:B:501:FAD:HM82	1.85	0.41
1:D:193:ALA:O	1:D:197:HIS:HB2	2.20	0.41
1:A:48:ASN:OD1	1:A:50:ILE:HG22	2.21	0.41
1:B:136:LEU:HD12	1:B:136:LEU:C	2.45	0.41
1:A:106:HIS:HD2	1:A:287:THR:HA	1.86	0.41
1:A:344:ARG:O	1:A:344:ARG:CG	2.68	0.41
1:B:97:ALA:HA	1:B:275:TRP:CZ2	2.56	0.41
1:C:78:VAL:O	1:C:170:THR:HA	2.21	0.41
1:C:139:ALA:HB1	1:C:413:LYS:HE3	2.03	0.41
1:D:118:HIS:ND1	1:D:118:HIS:C	2.78	0.41
1:A:45:HIS:CE1	2:A:501:FAD:HM83	2.49	0.41
1:A:350:HIS:CD2	1:A:350:HIS:C	2.99	0.41
1:B:106:HIS:HE1	1:B:284:LEU:O	2.01	0.41
1:B:326:SER:OG	1:B:350:HIS:O	2.30	0.41
1:C:158:ALA:HA	1:C:165:LEU:CD1	2.50	0.41
1:C:245:LEU:N	1:C:245:LEU:CD2	2.83	0.41
1:D:65:PRO:HB3	1:D:82:LEU:CD2	2.50	0.41
1:A:202:MET:HE1	1:A:210:LEU:CG	2.51	0.41
1:A:202:MET:HE3	1:A:210:LEU:HD21	2.03	0.41
1:B:392:ARG:NH1	1:B:425:ASP:O	2.51	0.41
1:C:109:VAL:CG1	1:C:171:MET:CE	2.90	0.41
1:D:64:PRO:HA	1:D:65:PRO:HD3	1.87	0.41
1:D:118:HIS:CD2	1:D:341:PHE:HZ	2.38	0.41
1:A:69:ILE:HG21	1:A:96:TYR:CE2	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:287:THR:O	1:A:287:THR:CG2	2.62	0.41
1:B:166:GLY:HA2	1:B:414:PHE:CE2	2.56	0.41
1:C:190:PRO:O	1:C:193:ALA:HB3	2.21	0.41
1:D:139:ALA:HB1	1:D:413:LYS:HE2	2.03	0.41
1:A:110:ALA:CA	1:A:171:MET:HE1	2.51	0.41
1:A:150:ALA:C	1:A:152:PRO:HD3	2.45	0.41
1:B:22:PRO:O	1:B:62:ALA:HB3	2.21	0.41
1:B:6:THR:HG22	1:B:13:VAL:HG22	2.03	0.40
1:A:100:ASN:HB2	1:A:124:ILE:HG21	2.02	0.40
1:A:409:ASP:N	1:A:410:PRO:HD3	2.36	0.40
1:C:118:HIS:HE2	1:C:297:GLU:CD	2.29	0.40
1:C:372:ALA:HB3	1:C:373:PRO:HD3	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	408/427 (96%)	384 (94%)	24 (6%)	0	100	100
1	B	407/427 (95%)	368 (90%)	35 (9%)	4 (1%)	12	20
1	C	395/427 (92%)	364 (92%)	28 (7%)	3 (1%)	16	25
1	D	393/427 (92%)	360 (92%)	32 (8%)	1 (0%)	36	50
All	All	1603/1708 (94%)	1476 (92%)	119 (7%)	8 (0%)	24	37

All (8) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	241	VAL
1	B	126	GLY
1	B	319	ILE

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Mol	Chain	Res	Type
1	C	102	ALA
1	B	305	ALA
1	C	286	PHE
1	D	67	VAL
1	C	322	VAL

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	323/333 (97%)	313 (97%)	10 (3%)	35	57
1	B	322/333 (97%)	309 (96%)	13 (4%)	28	47
1	C	316/333 (95%)	301 (95%)	15 (5%)	23	41
1	D	307/333 (92%)	297 (97%)	10 (3%)	33	55
All	All	1268/1332 (95%)	1220 (96%)	48 (4%)	29	49

All (48) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	5	SER
1	A	15	ARG
1	A	43	SER
1	A	77	ARG
1	A	78	VAL
1	A	82	LEU
1	A	90	ARG
1	A	107	ILE
1	A	151	ASP
1	A	219	ILE
1	B	5	SER
1	B	17	SER
1	B	26	ASP
1	B	43	SER
1	B	77	ARG
1	B	78	VAL

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Mol	Chain	Res	Type
1	B	90	ARG
1	B	143	LEU
1	B	266	THR
1	B	290	SER
1	B	365	SER
1	B	366	LEU
1	B	389	LYS
1	C	19	LEU
1	C	26	ASP
1	C	78	VAL
1	C	90	ARG
1	C	151	ASP
1	C	182	ARG
1	C	187	GLU
1	C	210	LEU
1	C	212	THR
1	C	217	ASP
1	C	245	LEU
1	C	266	THR
1	C	365	SER
1	C	390	VAL
1	C	402	ARG
1	D	13	VAL
1	D	49	GLU
1	D	63	LEU
1	D	82	LEU
1	D	87	LEU
1	D	104	LEU
1	D	107	ILE
1	D	143	LEU
1	D	219	ILE
1	D	266	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (11) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	180	GLN
1	A	188	ASN
1	A	197	HIS
1	A	276	HIS
1	B	20	HIS
1	B	106	HIS

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Mol	Chain	Res	Type
1	B	422	HIS
1	C	255	HIS
1	C	379	HIS
1	D	342	HIS
1	D	422	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 ⓘ

8 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	$\# Z > 2$
2	FAD	A	501	-	58,58,58	0.64	0	85,89,89	0.68	1 (1%)
2	FAD	D	501	-	58,58,58	0.71	1 (1%)	85,89,89	0.65	0
3	XUL	B	502	-	9,9,9	0.85	1 (11%)	6,11,11	2.86	2 (33%)
2	FAD	C	501	-	58,58,58	0.61	0	85,89,89	0.73	0
2	FAD	B	501	-	58,58,58	0.78	2 (3%)	85,89,89	0.81	1 (1%)
3	XUL	D	502	-	9,9,9	0.57	0	6,11,11	1.56	2 (33%)
3	XUL	C	502	-	9,9,9	0.85	0	6,11,11	0.90	0
3	XUL	A	502	-	9,9,9	0.88	0	6,11,11	1.93	1 (16%)

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	FAD	A	501	-	-	8/34/50/50	0/6/6/6
2	FAD	D	501	-	-	6/34/50/50	0/6/6/6
3	XUL	B	502	-	-	7/12/12/12	-
2	FAD	C	501	-	-	5/34/50/50	0/6/6/6
2	FAD	B	501	-	-	4/34/50/50	0/6/6/6
3	XUL	D	502	-	-	2/12/12/12	-
3	XUL	C	502	-	-	3/12/12/12	-
3	XUL	A	502	-	-	2/12/12/12	-

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	501	FAD	C1'-C2'	2.58	1.56	1.52
2	B	501	FAD	PA-O3P	2.42	1.62	1.59
3	B	502	XUL	C4-C3	2.10	1.55	1.53
2	D	501	FAD	PA-O3P	2.03	1.61	1.59

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	502	XUL	O4-C4-C3	5.94	118.31	109.67
3	A	502	XUL	O4-C4-C3	-3.98	103.90	109.67
2	B	501	FAD	O2P-P-O3P	3.93	117.90	107.27
3	D	502	XUL	O2-C2-C1	-2.93	115.19	120.16
2	A	501	FAD	O2P-P-O1P	2.46	123.89	112.44
3	B	502	XUL	O3-C3-C4	2.41	115.61	109.46
3	D	502	XUL	O1-C1-C2	-2.14	107.06	112.73

There are no chirality outliers.

All (37) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	501	FAD	P-O3P-PA-O5B
2	A	501	FAD	C2'-C3'-C4'-C5'
2	A	501	FAD	O3'-C3'-C4'-C5'
2	B	501	FAD	O4'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
2	D	501	FAD	N10-C1'-C2'-O2'
3	A	502	XUL	O3-C3-C4-C5
3	B	502	XUL	O1-C1-C2-C3
3	B	502	XUL	O1-C1-C2-O2
3	B	502	XUL	O3-C3-C4-C5
3	B	502	XUL	O3-C3-C4-O4
3	C	502	XUL	O2-C2-C3-O3
3	D	502	XUL	O1-C1-C2-C3
3	D	502	XUL	O1-C1-C2-O2
2	A	501	FAD	O3'-C3'-C4'-O4'
2	A	501	FAD	C2'-C3'-C4'-O4'
2	C	501	FAD	O4'-C4'-C5'-O5'
3	C	502	XUL	O4-C4-C5-O5
2	B	501	FAD	C3'-C4'-C5'-O5'
2	C	501	FAD	C3'-C4'-C5'-O5'
2	B	501	FAD	P-O3P-PA-O5B
2	A	501	FAD	PA-O3P-P-O1P
2	D	501	FAD	O4'-C4'-C5'-O5'
3	B	502	XUL	C2-C3-C4-C5
3	C	502	XUL	O2-C2-C3-C4
2	A	501	FAD	C5'-O5'-P-O3P
2	B	501	FAD	C5'-O5'-P-O3P
2	C	501	FAD	C5B-O5B-PA-O1A
3	B	502	XUL	C2-C3-C4-O4
2	D	501	FAD	PA-O3P-P-O2P
2	D	501	FAD	C3'-C4'-C5'-O5'
2	C	501	FAD	C2'-C3'-C4'-O4'
3	A	502	XUL	O3-C3-C4-O4
2	D	501	FAD	C2'-C3'-C4'-O4'
2	C	501	FAD	O3'-C3'-C4'-O4'
2	A	501	FAD	PA-O3P-P-O2P
2	D	501	FAD	O3'-C3'-C4'-O4'
3	B	502	XUL	O2-C2-C3-C4

There are no ring outliers.

6 monomers are involved in 43 short contacts:

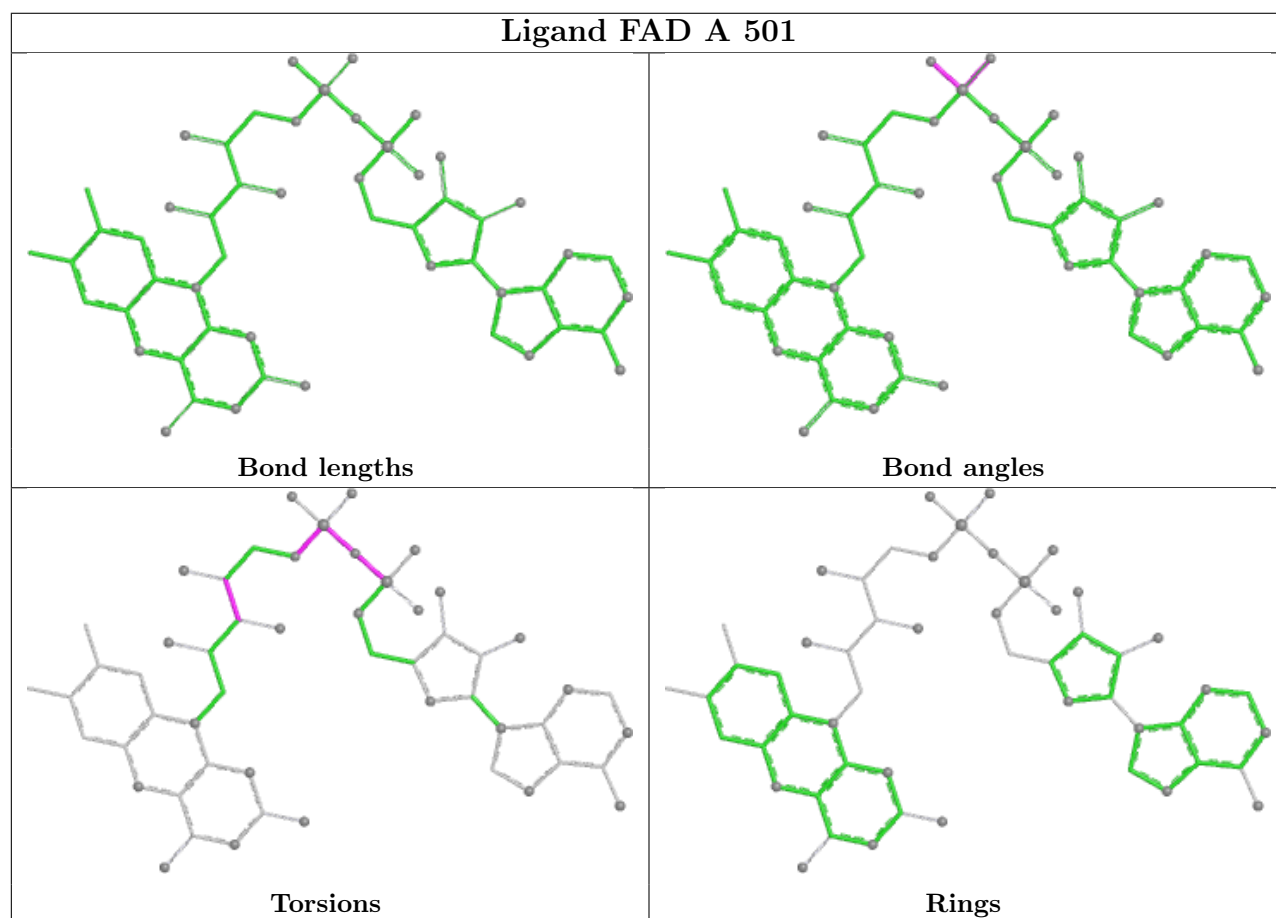
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	501	FAD	12	0
2	D	501	FAD	7	0
3	B	502	XUL	1	0
2	C	501	FAD	9	0

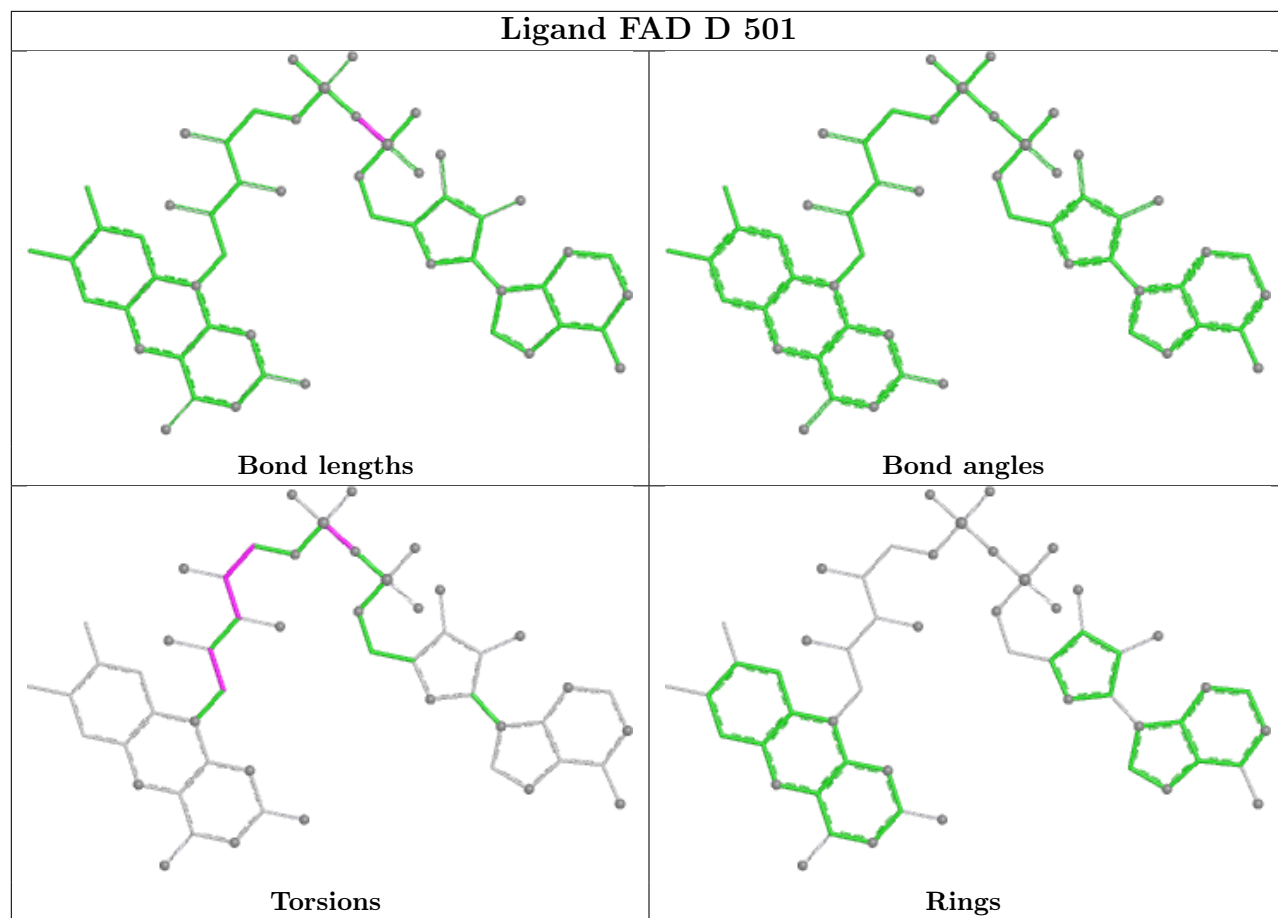
Continued on next page...

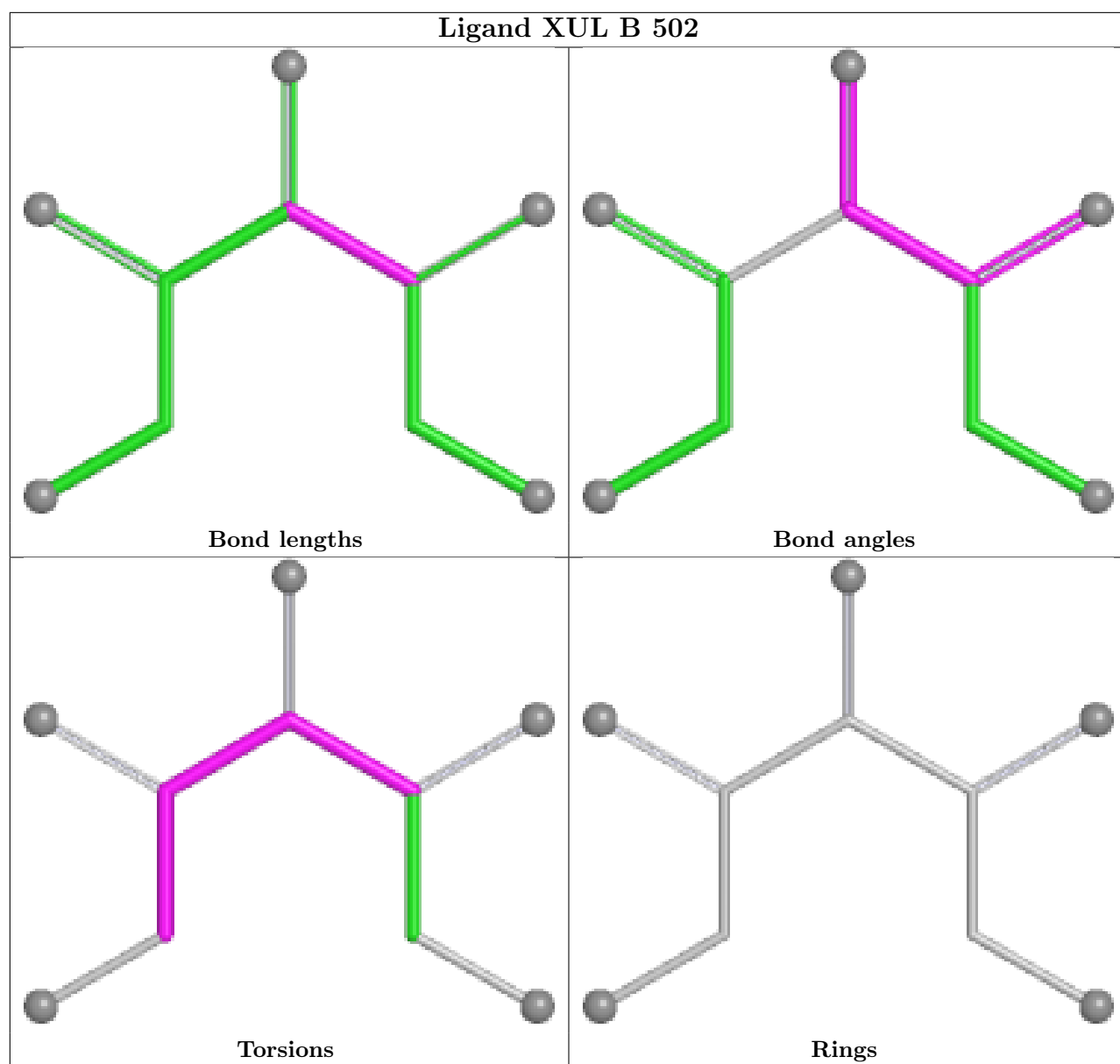
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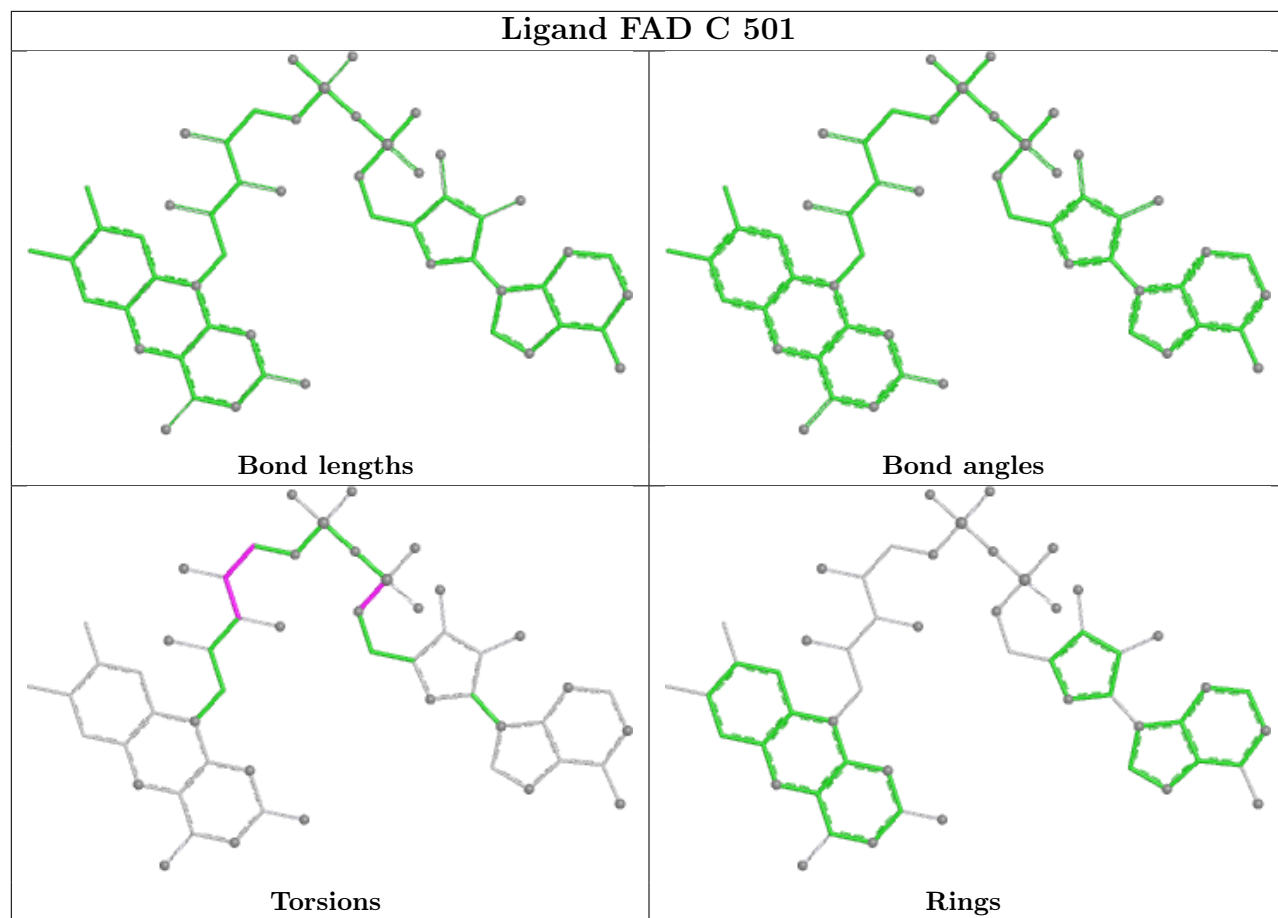
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	501	FAD	12	0
3	D	502	XUL	2	0

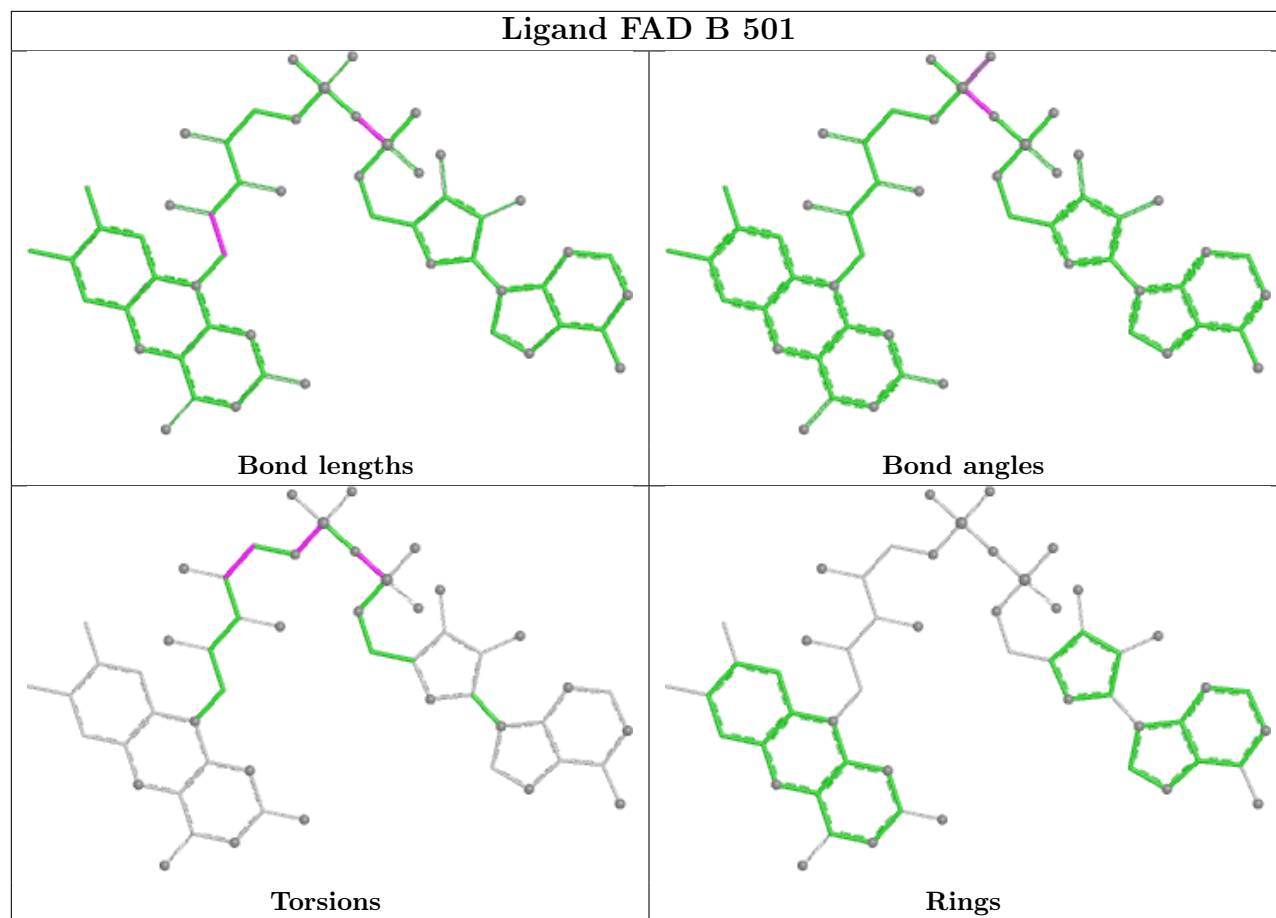
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

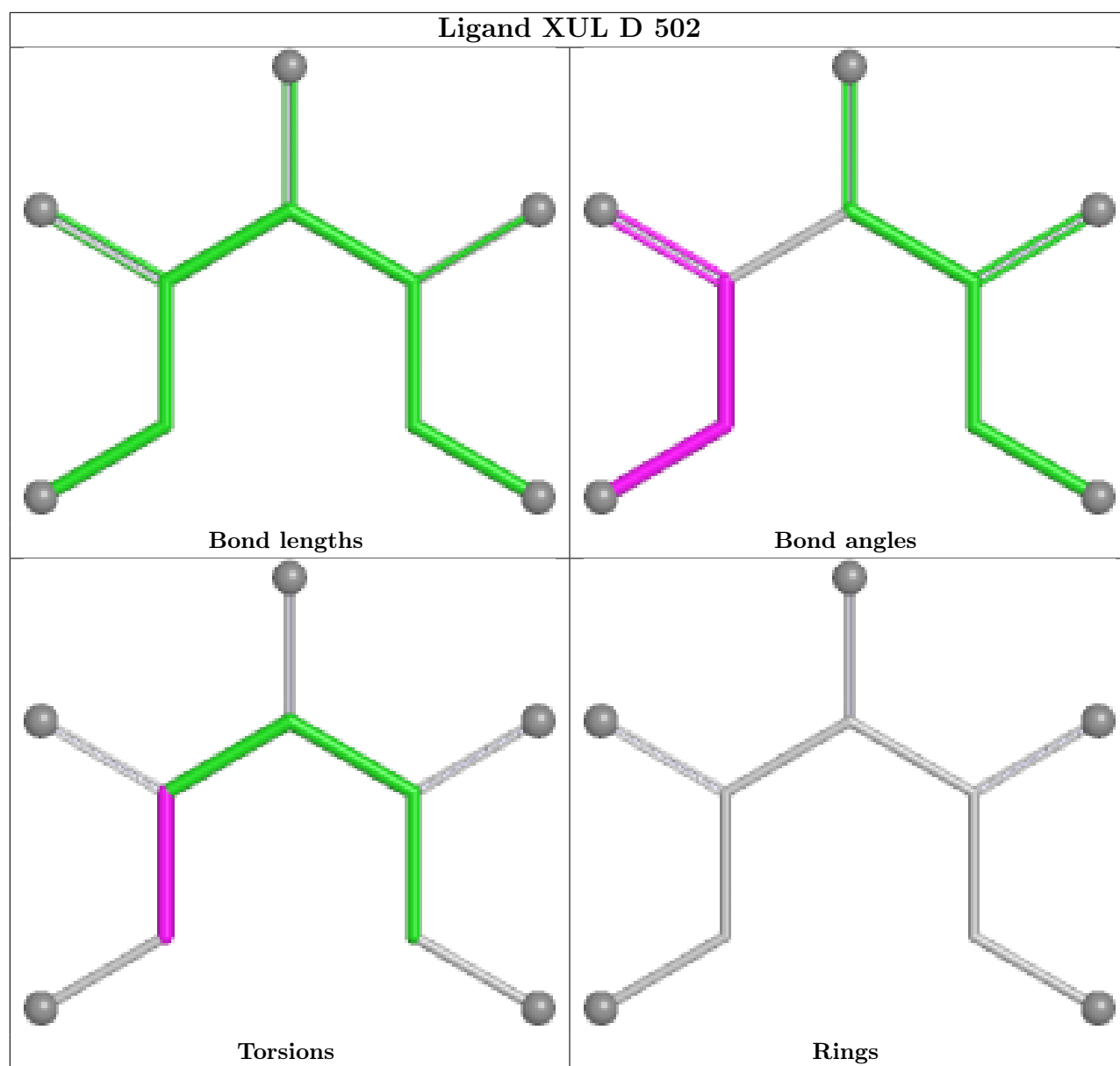


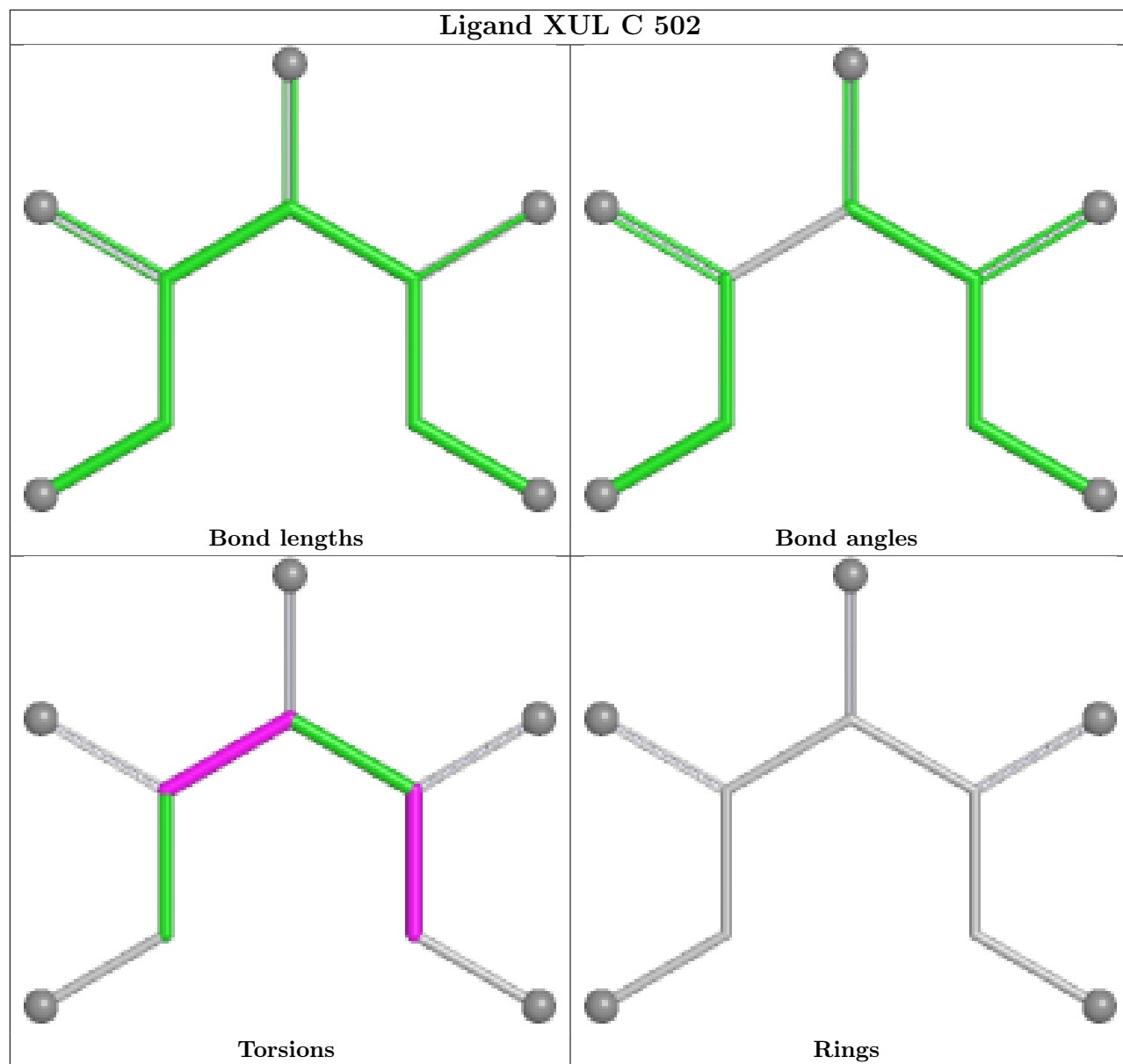


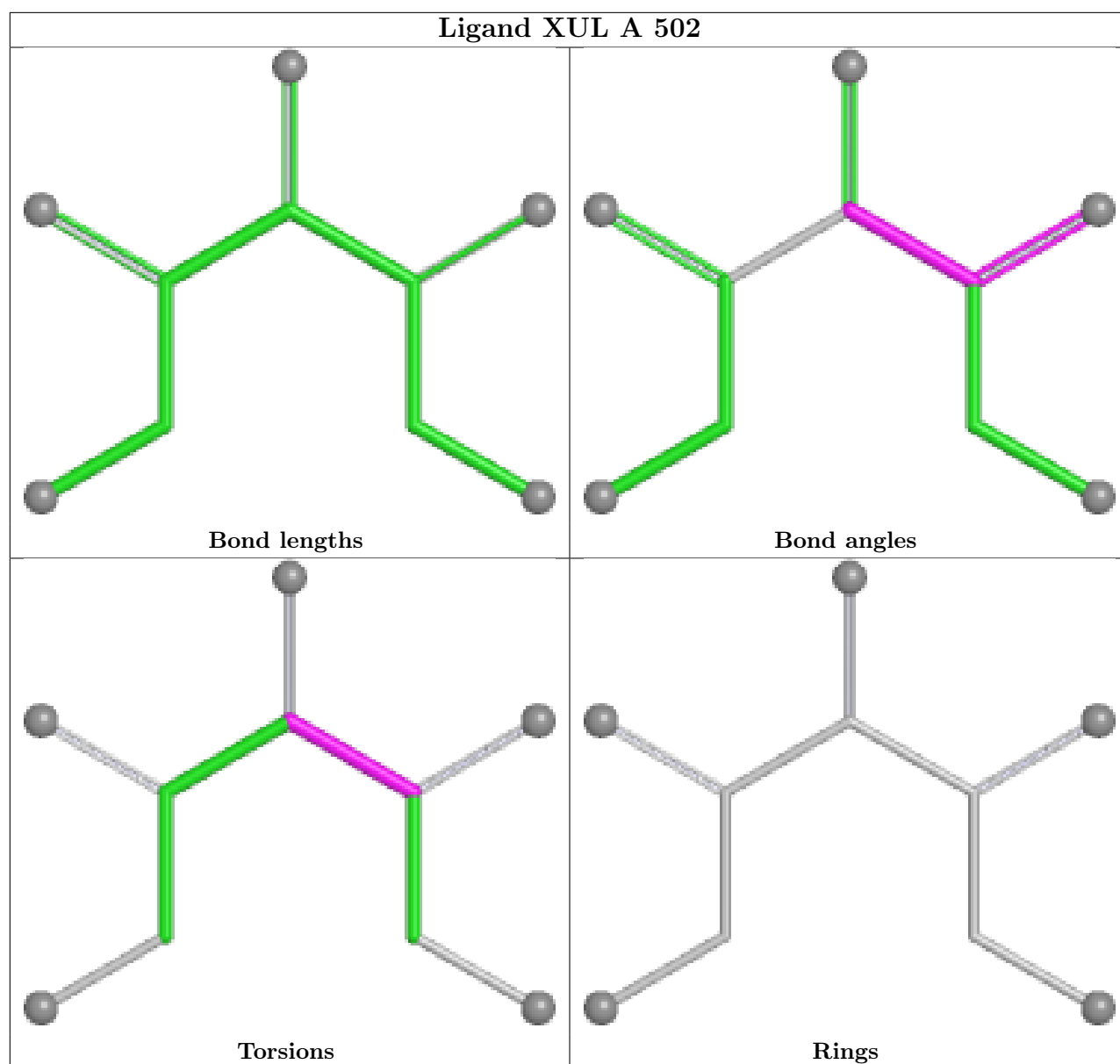












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	412/427 (96%)	-0.09	3 (0%) 84 81	44, 62, 85, 106	0
1	B	411/427 (96%)	-0.02	3 (0%) 84 81	45, 65, 87, 106	0
1	C	405/427 (94%)	0.14	5 (1%) 76 73	48, 75, 106, 134	0
1	D	399/427 (93%)	0.19	10 (2%) 58 54	53, 79, 106, 120	0
All	All	1627/1708 (95%)	0.05	21 (1%) 75 71	44, 69, 100, 134	0

All (21) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	240	PRO	3.6
1	A	228	VAL	3.5
1	D	228	VAL	2.8
1	A	80	ALA	2.7
1	C	250	ALA	2.7
1	C	240	PRO	2.5
1	C	313	ALA	2.5
1	D	158	ALA	2.5
1	D	13	VAL	2.5
1	D	19	LEU	2.4
1	A	5	SER	2.4
1	D	217	ASP	2.3
1	D	165	LEU	2.2
1	C	104	LEU	2.2
1	D	82	LEU	2.2
1	D	246	GLY	2.2
1	D	123	GLY	2.1
1	C	322	VAL	2.1
1	B	223	TRP	2.1
1	D	264	ASN	2.1
1	B	289	SER	2.0

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

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

6.3 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

6.4 Ligands ⓘ

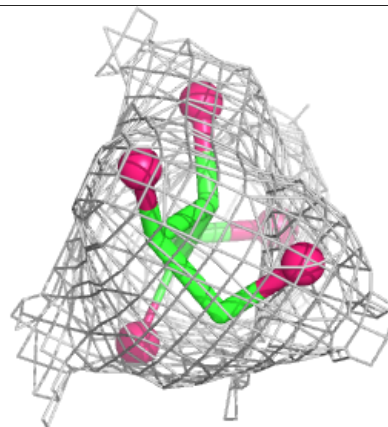
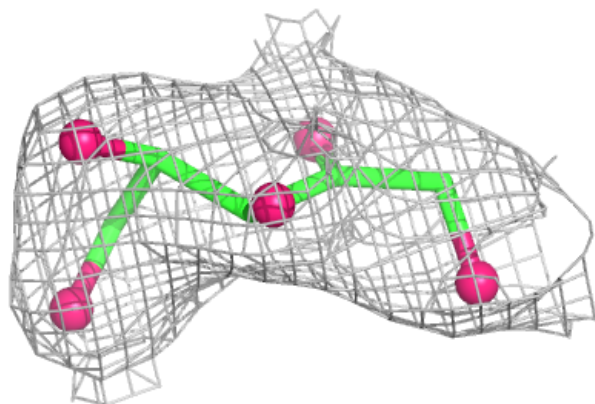
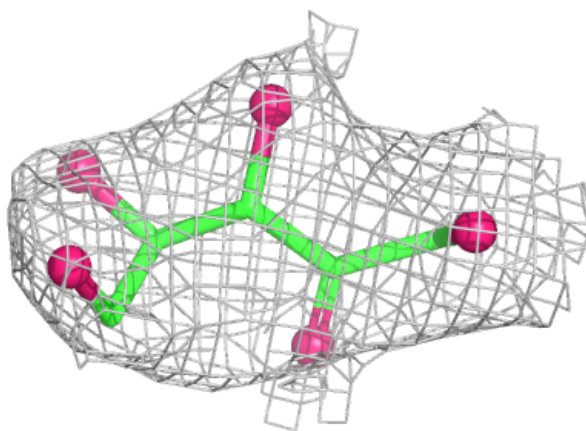
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
3	XUL	B	502	10/10	0.88	0.09	53,71,83,97	0
3	XUL	A	502	10/10	0.90	0.10	53,58,62,71	0
3	XUL	C	502	10/10	0.92	0.10	59,74,87,96	0
3	XUL	D	502	10/10	0.92	0.08	62,75,84,97	0
2	FAD	C	501	53/53	0.94	0.07	49,65,79,87	0
2	FAD	D	501	53/53	0.94	0.08	48,68,83,87	0
2	FAD	B	501	53/53	0.95	0.07	40,55,70,73	0
2	FAD	A	501	53/53	0.96	0.06	43,54,61,65	0

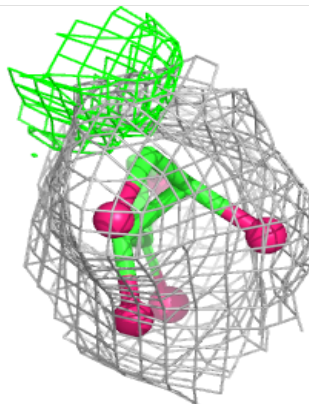
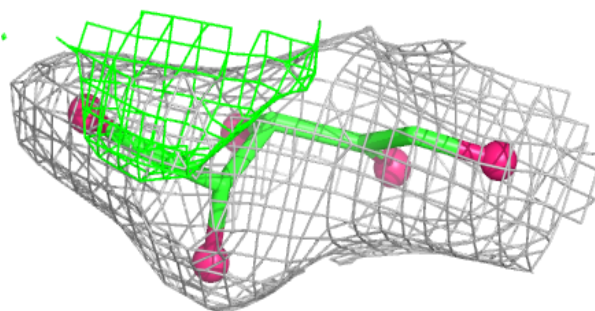
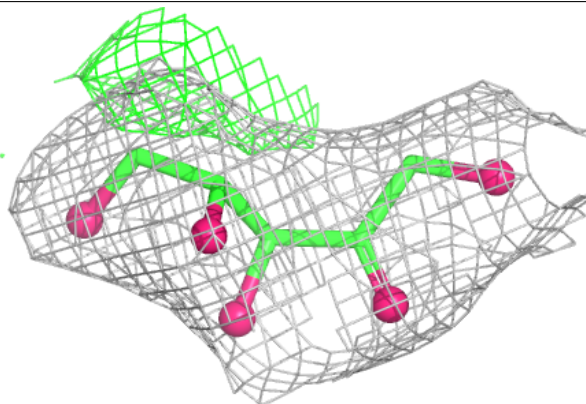
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around XUL 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)

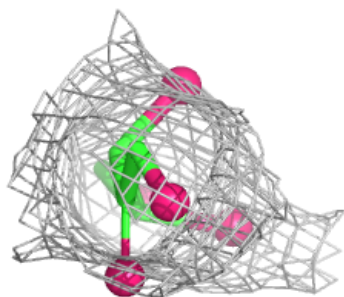
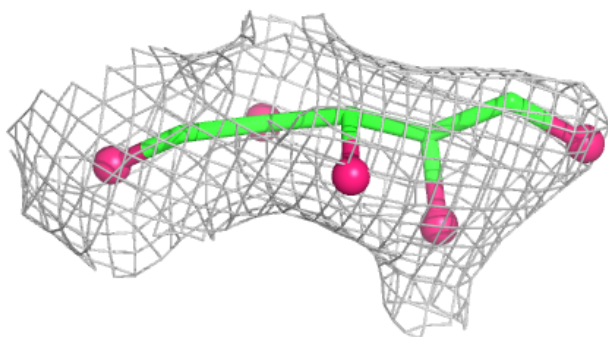
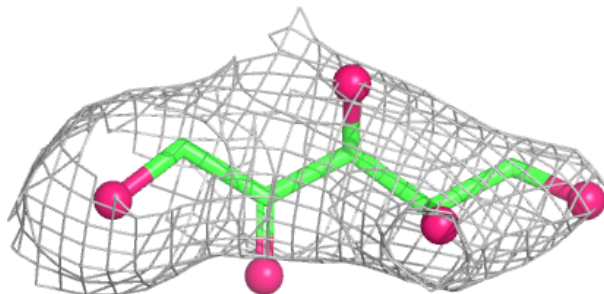
**Electron density around XUL A 502:**

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

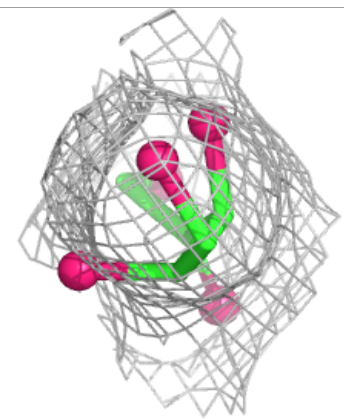
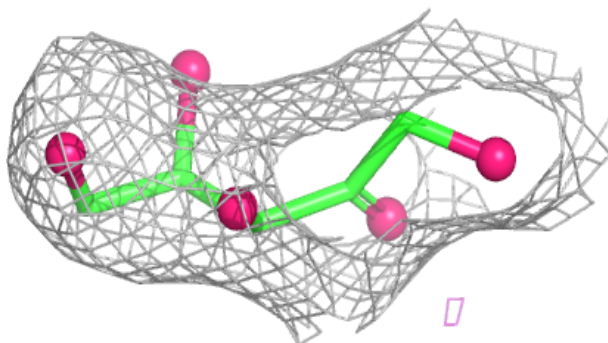
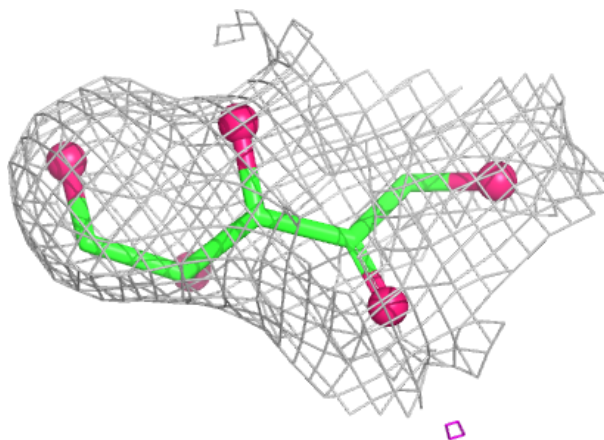


Electron density around XUL C 502:

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

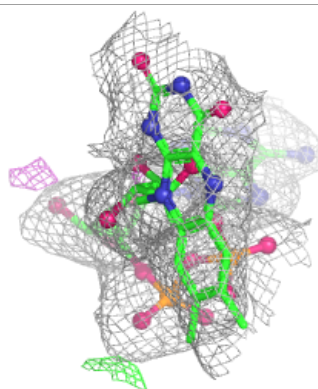
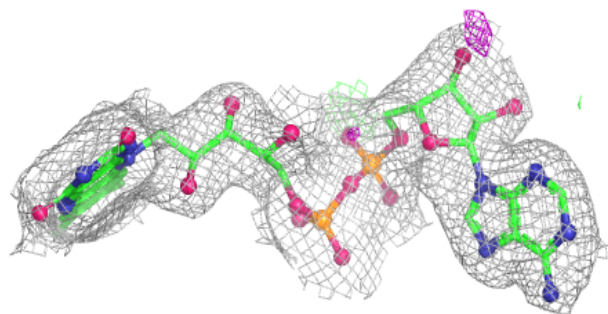
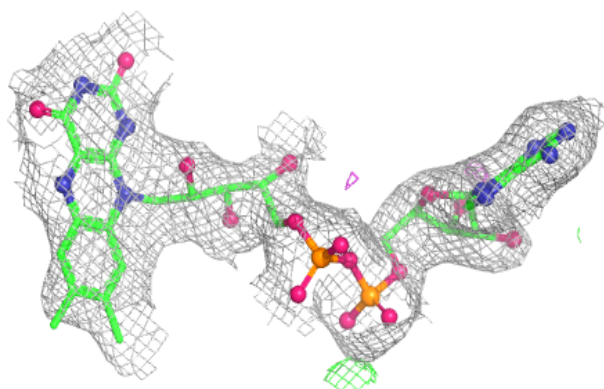
**Electron density around XUL D 502:**

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and green (positive)

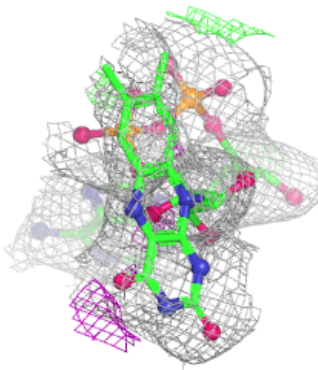
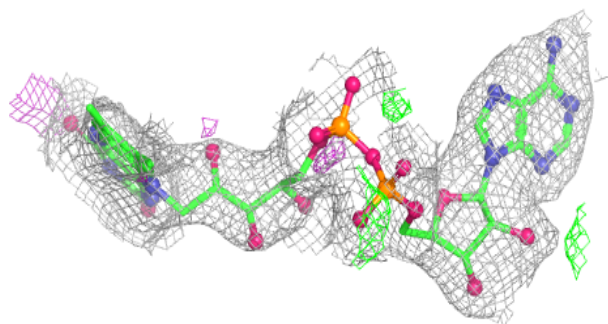
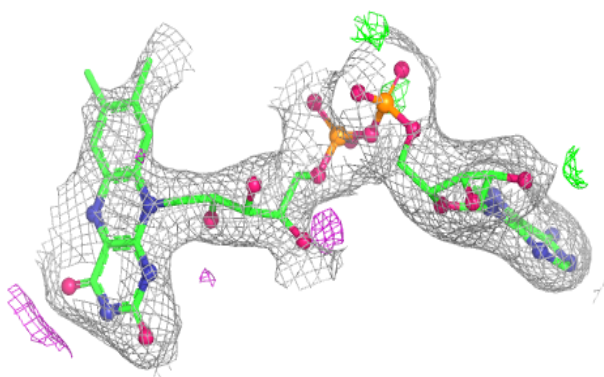


Electron density around FAD C 501:

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

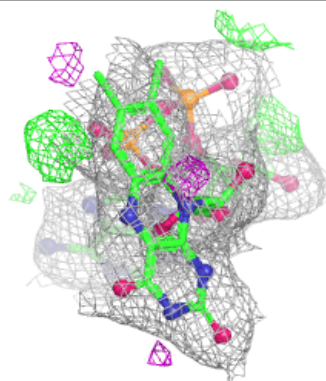
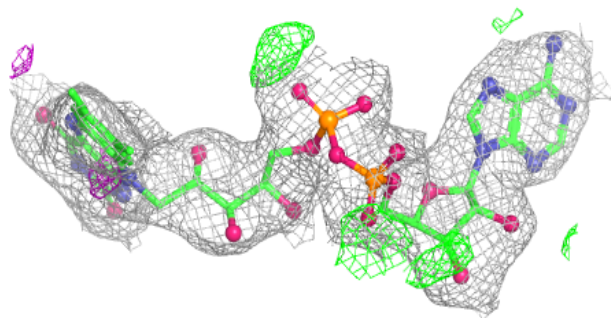
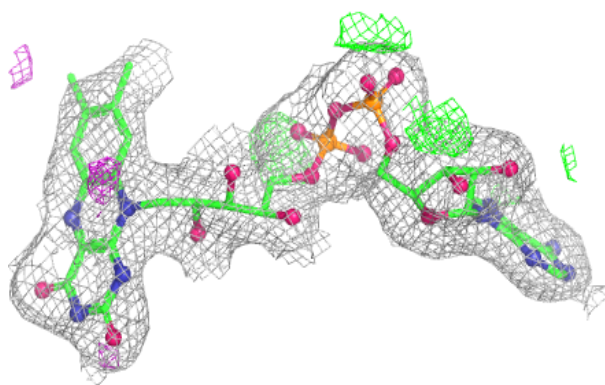
**Electron density around FAD D 501:**

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

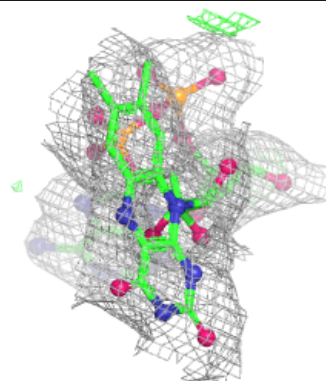
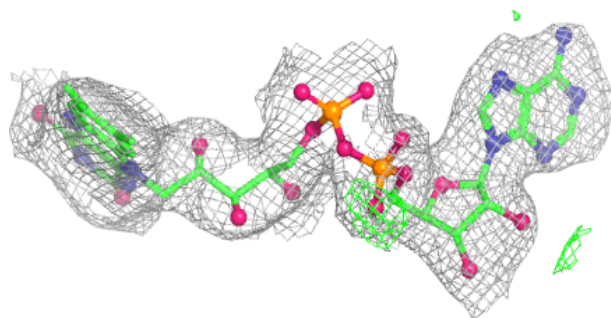
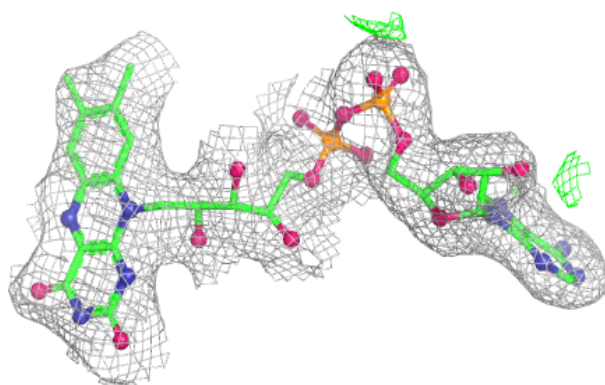


Electron density around FAD B 501:

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

**Electron density around FAD 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)



6.5 Other polymers ⓘ

There are no such residues in this entry.