Full wwPDB X-ray Structure Validation Report ⓘ

Mar 17, 2025 – 12:45 PM JST

PDB ID	:	8YU0
Title	:	Structure of cyclohexanone monooxygenase mutant from Acinetobacter calcoaceticus
Authors	:	Qiang, G.; Zheng, Y.C.; Feng, L.; Yu, H.L.
Deposited on	:	2024-03-26
Resolution	:	1.80 Å(reported)

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

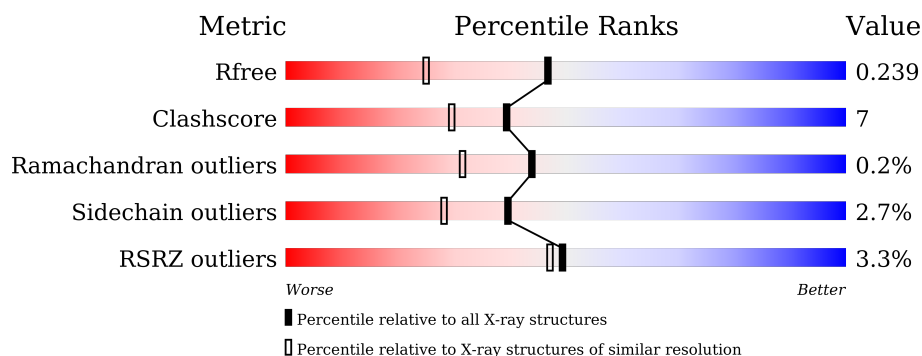|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.21
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.004 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.41.4

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 1.80 Å.

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

Metric	Percentile Ranks	Value
Rfree		0.239
Clashscore		7
Ramachandran outliers		0.2%
Sidechain outliers		2.7%
RSRZ outliers		3.3%

Worse _____ Better

▮ Percentile relative to all X-ray structures

⬚ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R$_{free}$	164625	7108 (1.80-1.80)
Clashscore	180529	8162 (1.80-1.80)
Ramachandran outliers	177936	8077 (1.80-1.80)
Sidechain outliers	177891	8076 (1.80-1.80)
RSRZ outliers	164620	7108 (1.80-1.80)

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	548	3% ▮ 80% 13% · 6%

2 Entry composition ⓘ

There are 4 unique types of molecules in this entry. The entry contains 4831 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.
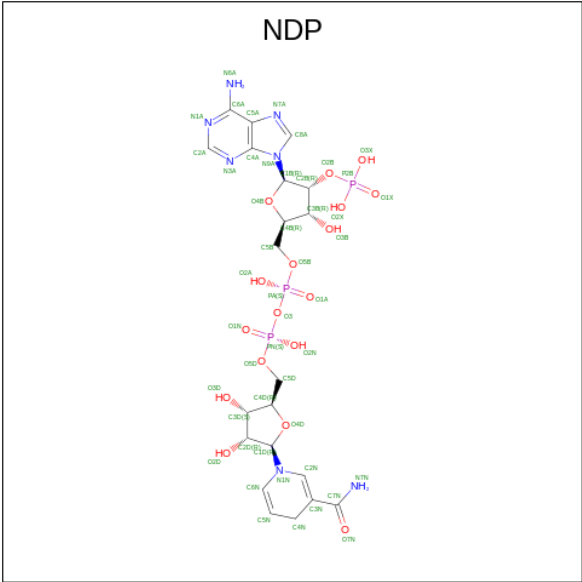
- Molecule 1 is a protein called Putative flavin-binding monooxygenase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	514	4088	2606	683	782	17	0	0	0

There are 22 discrepancies between the modelled and reference sequences:
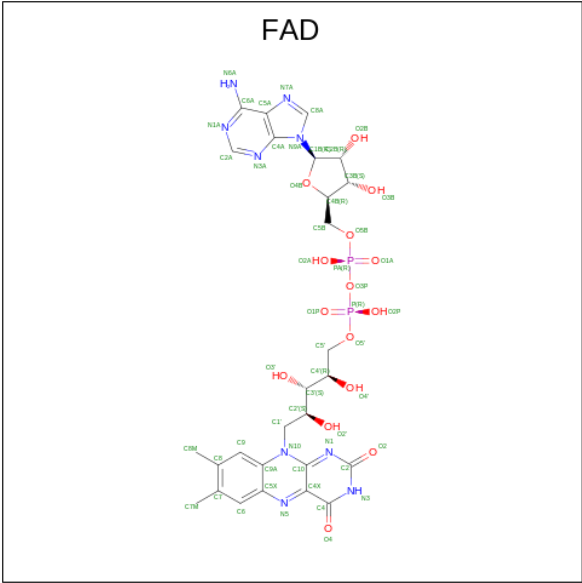
Chain	Residue	Modelled	Actual	Comment	Reference
A	-5	MET	-	initiating methionine	UNP A0A0A8XFY0
A	-4	HIS	-	expression tag	UNP A0A0A8XFY0
A	-3	HIS	-	expression tag	UNP A0A0A8XFY0
A	-2	HIS	-	expression tag	UNP A0A0A8XFY0
A	-1	HIS	-	expression tag	UNP A0A0A8XFY0
A	0	HIS	-	expression tag	UNP A0A0A8XFY0
A	1	HIS	-	expression tag	UNP A0A0A8XFY0
A	143	PRO	LEU	engineered mutation	UNP A0A0A8XFY0
A	246	TYR	PHE	engineered mutation	UNP A0A0A8XFY0
A	326	CYS	LYS	engineered mutation	UNP A0A0A8XFY0
A	386	SER	ASN	engineered mutation	UNP A0A0A8XFY0
A	388	LYS	ILE	engineered mutation	UNP A0A0A8XFY0
A	390	ILE	MET	engineered mutation	UNP A0A0A8XFY0
A	426	PHE	LEU	engineered mutation	UNP A0A0A8XFY0
A	432	LEU	PHE	engineered mutation	UNP A0A0A8XFY0
A	433	ALA	THR	engineered mutation	UNP A0A0A8XFY0
A	435	SER	LEU	engineered mutation	UNP A0A0A8XFY0
A	438	ILE	SER	engineered mutation	UNP A0A0A8XFY0
A	488	LYS	GLU	engineered mutation	UNP A0A0A8XFY0
A	489	CYS	SER	engineered mutation	UNP A0A0A8XFY0
A	490	ARG	TRP	engineered mutation	UNP A0A0A8XFY0
A	505	LEU	PHE	engineered mutation	UNP A0A0A8XFY0

- Molecule 2 is NADPH DIHYDRO-NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (three-letter code: NDP) (formula: $C_{21}H_{30}N_7O_{17}P_3$) (labeled as "Ligand of Interest" by depositor).

NDP

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
2	A	1	48	21	7	17	3	0	0

- Molecule 3 is FLAVIN-ADENINE DINUCLEOTIDE (three-letter code: FAD) (formula: $C_{27}H_{33}N_9O_{15}P_2$) (labeled as "Ligand of Interest" by depositor).

FAD

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

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	642	Total 642	O 642	0	0

3 Residue-property plots ⓘ

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

• Molecule 1: Putative flavin-binding monooxygenase
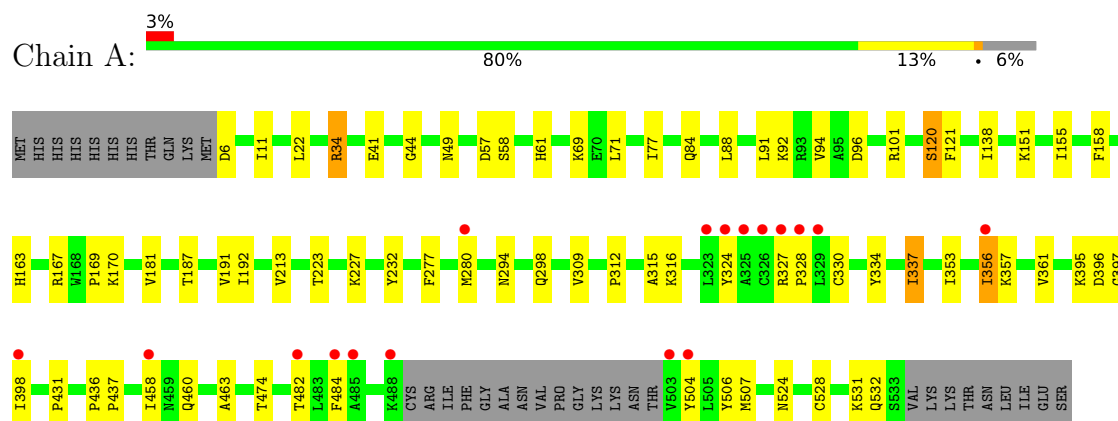
4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	52.95Å 53.22Å 101.60Å 90.00° 97.13° 90.00°	Depositor
Resolution (Å)	34.31 – 1.80 34.31 – 1.80	Depositor EDS
% Data completeness (in resolution range)	98.9 (34.31-1.80) 98.8 (34.31-1.80)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.05 (at 1.81Å)	Xtriage
Refinement program	PHENIX 1.19.2_4158	Depositor
R, R_{free}	0.193 , 0.240 0.194 , 0.239	Depositor DCC
R_{free} test set	2648 reflections (5.06%)	wwPDB-VP
Wilson B-factor (Å^2)	28.9	Xtriage
Anisotropy	0.111	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 43.5	EDS
L-test for twinning[2]	$< |L| > = 0.50, < L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	4831	wwPDB-VP
Average B, all atoms (Å^2)	37.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.99% 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: NDP, FAD

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	0.26	0/4180	0.49	0/5657

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	4088	0	3996	54	0
2	A	48	0	26	2	0
3	A	53	0	31	2	0
4	A	642	0	0	18	0
All	All	4831	0	4053	54	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 7.

All (54) 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:528:CYS:SG	4:A:707:HOH:O	2.40	0.79
1:A:158:PHE:HB2	1:A:356:ILE:HD11	1.65	0.79
1:A:482:THR:HG22	1:A:484:PHE:H	1.48	0.78
1:A:41:GLU:HG2	1:A:92:LYS:HE2	1.72	0.70
1:A:312:PRO:O	1:A:316:LYS:HG3	1.98	0.63
1:A:151:LYS:NZ	4:A:704:HOH:O	2.32	0.63
1:A:395:LYS:O	1:A:398:ILE:HD12	2.01	0.60
1:A:531:LYS:NZ	4:A:706:HOH:O	2.33	0.59
1:A:181:VAL:HG21	4:A:1084:HOH:O	2.03	0.58
1:A:309:VAL:HG22	1:A:315:ALA:HB2	1.86	0.57
1:A:524:ASN:ND2	4:A:712:HOH:O	2.38	0.56
1:A:280:MET:HE2	1:A:327:ARG:HA	1.88	0.55
1:A:69:LYS:NZ	4:A:714:HOH:O	2.39	0.55
1:A:294:ASN:OD1	1:A:298:GLN:NE2	2.38	0.54
1:A:277:PHE:HA	4:A:1193:HOH:O	2.10	0.52
1:A:91:LEU:HD12	4:A:1206:HOH:O	2.11	0.51
1:A:155:ILE:HA	1:A:356:ILE:HG12	1.92	0.51
1:A:88:LEU:HA	4:A:1206:HOH:O	2.11	0.50
1:A:96:ASP:OD1	1:A:101:ARG:NH1	2.34	0.50
1:A:458:ILE:HG22	1:A:532:GLN:HG3	1.94	0.49
1:A:458:ILE:HG22	1:A:532:GLN:CG	2.42	0.49
1:A:61:HIS:N	4:A:723:HOH:O	2.45	0.48
1:A:191:VAL:HG12	4:A:1084:HOH:O	2.12	0.48
1:A:298:GLN:HE22	1:A:324:TYR:HA	1.80	0.47
1:A:163:HIS:CE1	1:A:169:PRO:HG3	2.50	0.47
1:A:280:MET:CE	1:A:327:ARG:HA	2.46	0.46
1:A:192:ILE:HA	4:A:1084:HOH:O	2.15	0.46
1:A:298:GLN:NE2	1:A:324:TYR:HA	2.31	0.46
1:A:11:ILE:HG12	1:A:138:ILE:HB	1.99	0.45
1:A:187:THR:OG1	2:A:601:NDP:H5N	2.16	0.45
1:A:280:MET:CE	1:A:328:PRO:HD3	2.47	0.45
1:A:395:LYS:O	1:A:397:GLY:N	2.50	0.44
1:A:71:LEU:HD21	1:A:94:VAL:HG22	1.99	0.44
1:A:77:ILE:HG23	4:A:723:HOH:O	2.17	0.44
1:A:334:TYR:O	1:A:337:ILE:HB	2.18	0.44
1:A:356:ILE:HD12	1:A:357:LYS:O	2.18	0.44
1:A:49:ASN:O	1:A:84:GLN:HG3	2.17	0.43
1:A:158:PHE:HB2	1:A:356:ILE:CD1	2.43	0.43
1:A:353:ILE:HG12	4:A:774:HOH:O	2.18	0.43
1:A:398:ILE:HD12	1:A:398:ILE:H	1.85	0.42
1:A:213:VAL:O	1:A:330:CYS:HA	2.19	0.42
1:A:361:VAL:HG12	4:A:774:HOH:O	2.18	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:223:THR:O	1:A:227:LYS:HG2	2.20	0.42
1:A:58:SER:N	3:A:602:FAD:O4	2.53	0.42
1:A:463:ALA:HB3	4:A:727:HOH:O	2.19	0.42
1:A:431:PRO:HA	1:A:506:TYR:O	2.20	0.41
1:A:436:PRO:HB2	1:A:437:PRO:HD3	2.01	0.41
1:A:57:ASP:OD1	2:A:601:NDP:N7N	2.53	0.41
1:A:151:LYS:HB2	1:A:151:LYS:HE2	1.87	0.41
1:A:22:LEU:HD23	4:A:1180:HOH:O	2.20	0.41
1:A:44:GLY:HA2	3:A:602:FAD:O3B	2.21	0.41
1:A:34:ARG:HD2	4:A:743:HOH:O	2.20	0.40
1:A:120:SER:OG	1:A:460:GLN:OE1	2.38	0.40
1:A:280:MET:HE2	1:A:328: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	510/548 (93%)	500 (98%)	9 (2%)	1 (0%)	44	31

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	396	ASP

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	441/472 (93%)	429 (97%)	12 (3%)	40	28

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

Mol	Chain	Res	Type
1	A	6	ASP
1	A	34	ARG
1	A	120	SER
1	A	121	PHE
1	A	167	ARG
1	A	170	LYS
1	A	232	TYR
1	A	337	ILE
1	A	356	ILE
1	A	474	THR
1	A	504	TYR
1	A	507	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	403	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 ⓘ

2 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	FAD	A	602	-	53,58,58	0.47	0	68,89,89	0.51	1 (1%)
2	NDP	A	601	-	45,52,52	2.27	6 (13%)	53,80,80	1.61	10 (18%)

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	FAD	A	602	-	-	8/30/50/50	0/6/6/6
2	NDP	A	601	-	-	2/30/77/77	0/5/5/5

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	601	NDP	P2B-O2B	12.64	1.83	1.59
2	A	601	NDP	PN-O5D	3.63	1.74	1.59
2	A	601	NDP	O2B-C2B	-2.86	1.33	1.44
2	A	601	NDP	C7N-N7N	2.15	1.39	1.33
2	A	601	NDP	C7N-C3N	-2.14	1.44	1.48
2	A	601	NDP	C2A-N1A	2.14	1.37	1.33

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	601	NDP	PN-O3-PA	-6.10	111.88	132.83
2	A	601	NDP	O2B-P2B-O1X	-3.11	97.37	109.39
2	A	601	NDP	PN-O5D-C5D	-2.79	105.34	121.68
2	A	601	NDP	PA-O5B-C5B	-2.69	105.88	121.68
2	A	601	NDP	O3X-P2B-O2X	2.48	117.12	107.64
3	A	602	FAD	C5A-C6A-N6A	2.26	123.79	120.35
2	A	601	NDP	O5D-PN-O1N	-2.16	100.62	109.07
2	A	601	NDP	O4B-C4B-C3B	2.15	109.37	105.11

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	601	NDP	C2A-N1A-C6A	-2.10	115.17	118.75
2	A	601	NDP	O2N-PN-O1N	2.01	122.20	112.24
2	A	601	NDP	C3B-C2B-C1B	-2.01	99.11	102.89

There are no chirality outliers.
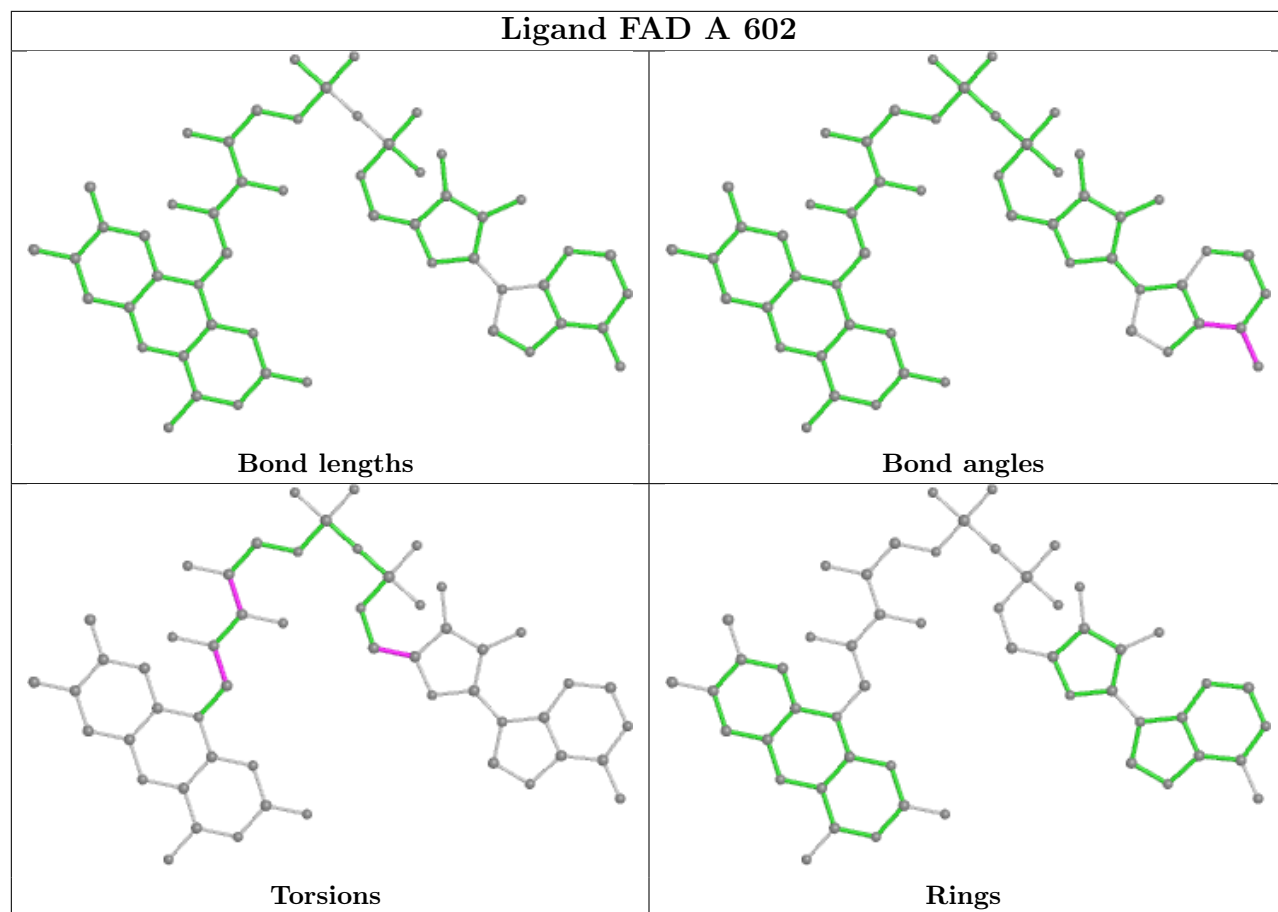
All (10) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	601	NDP	O4D-C1D-N1N-C2N
3	A	602	FAD	N10-C1'-C2'-O2'
3	A	602	FAD	N10-C1'-C2'-C3'
3	A	602	FAD	O4B-C4B-C5B-O5B
3	A	602	FAD	O3'-C3'-C4'-C5'
3	A	602	FAD	C3B-C4B-C5B-O5B
3	A	602	FAD	C2'-C3'-C4'-C5'
3	A	602	FAD	O3'-C3'-C4'-O4'
3	A	602	FAD	C2'-C3'-C4'-O4'
2	A	601	NDP	O4B-C4B-C5B-O5B
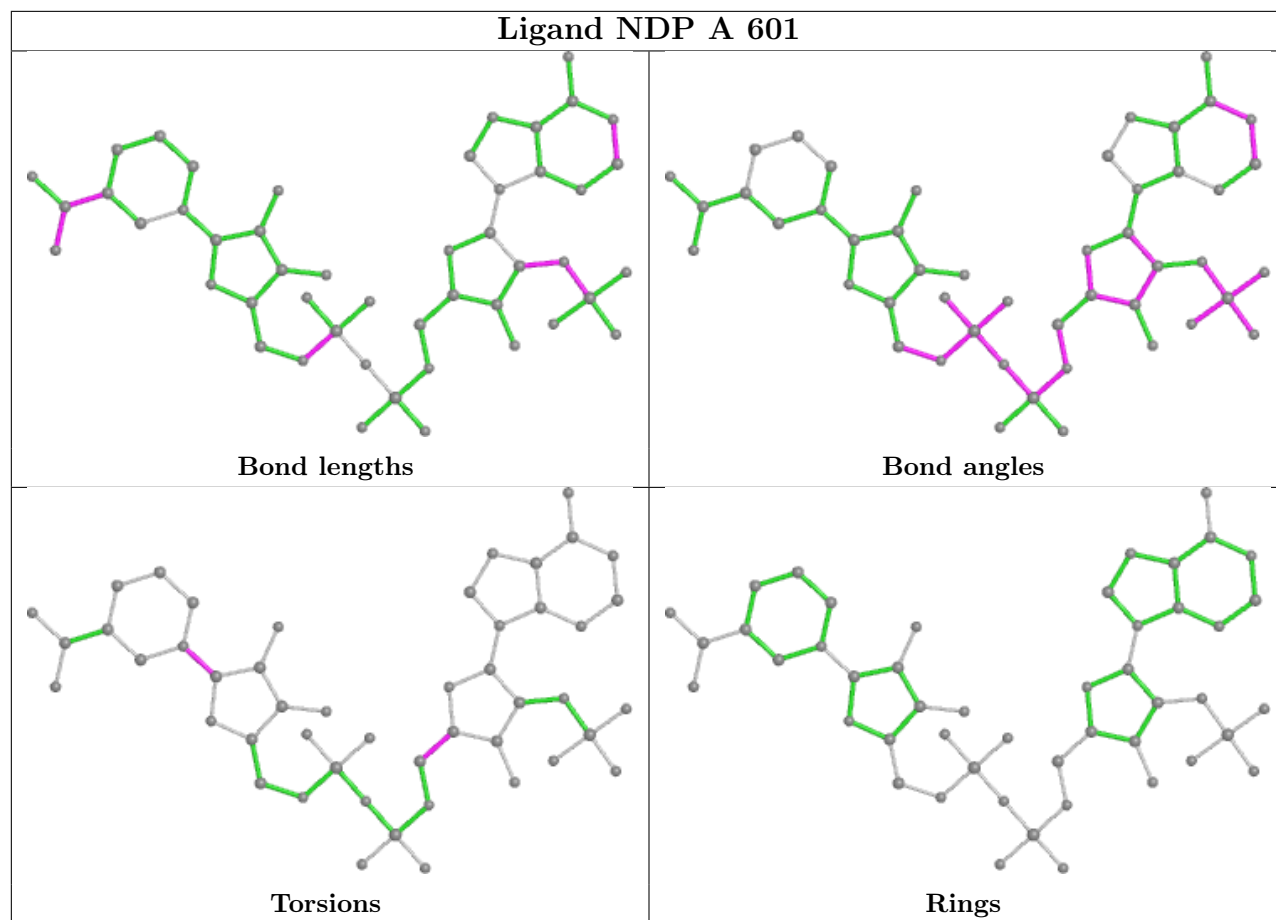
There are no ring outliers.

2 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	602	FAD	2	0
2	A	601	NDP	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 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 FAD A 602

Bond lengths

Bond angles

Torsions

Rings

Ligand NDP A 601

Bond lengths

Bond angles

Torsions

Rings

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å²)	Q<0.9
1	A	514/548 (93%)	0.19	17 (3%)	49	47	19, 33, 57, 84	0

All (17) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	326	CYS	5.1
1	A	503	VAL	5.0
1	A	328	PRO	4.8
1	A	325	ALA	4.8
1	A	484	PHE	4.1
1	A	504	TYR	3.6
1	A	482	THR	3.5
1	A	458	ILE	3.0
1	A	398	ILE	2.7
1	A	327	ARG	2.6
1	A	488	LYS	2.5
1	A	280	MET	2.4
1	A	324	TYR	2.3
1	A	356	ILE	2.3
1	A	323	LEU	2.2
1	A	329	LEU	2.2
1	A	485	ALA	2.0

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

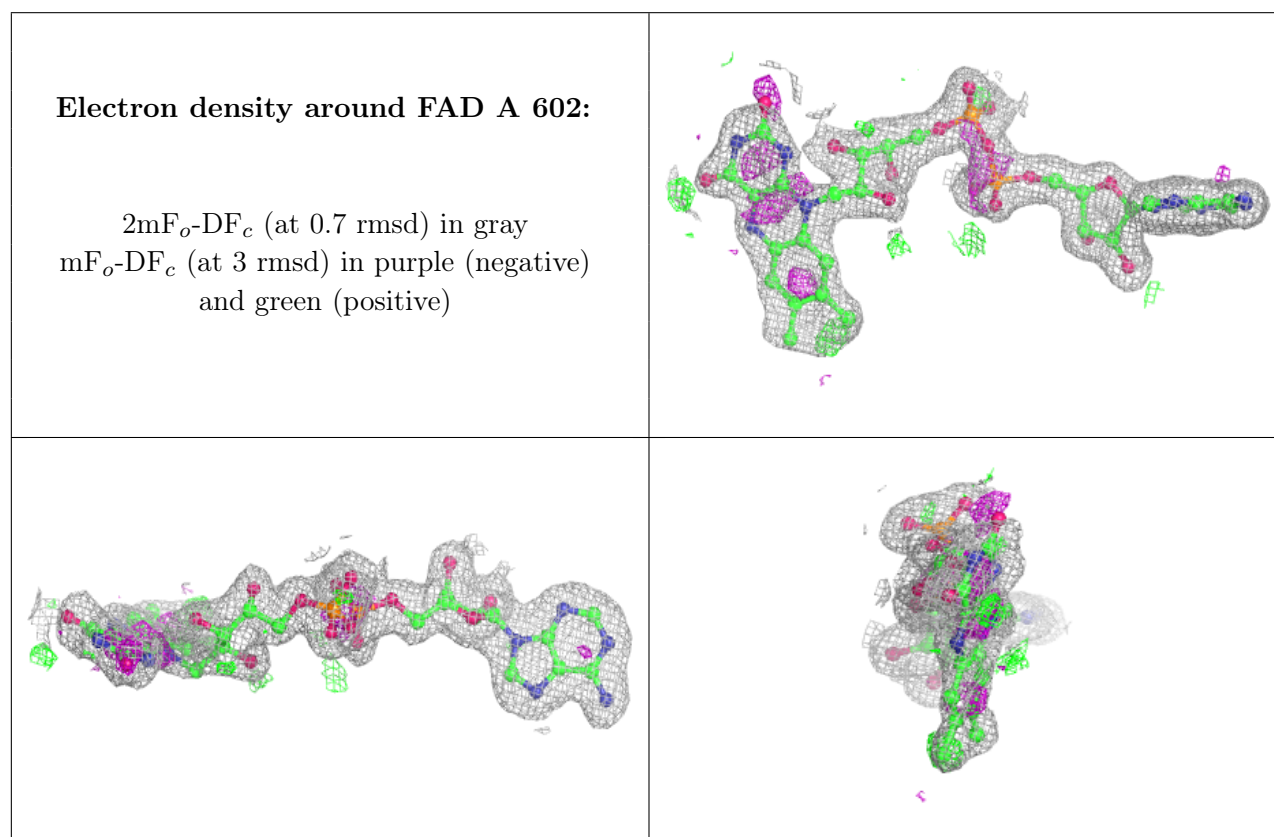There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.
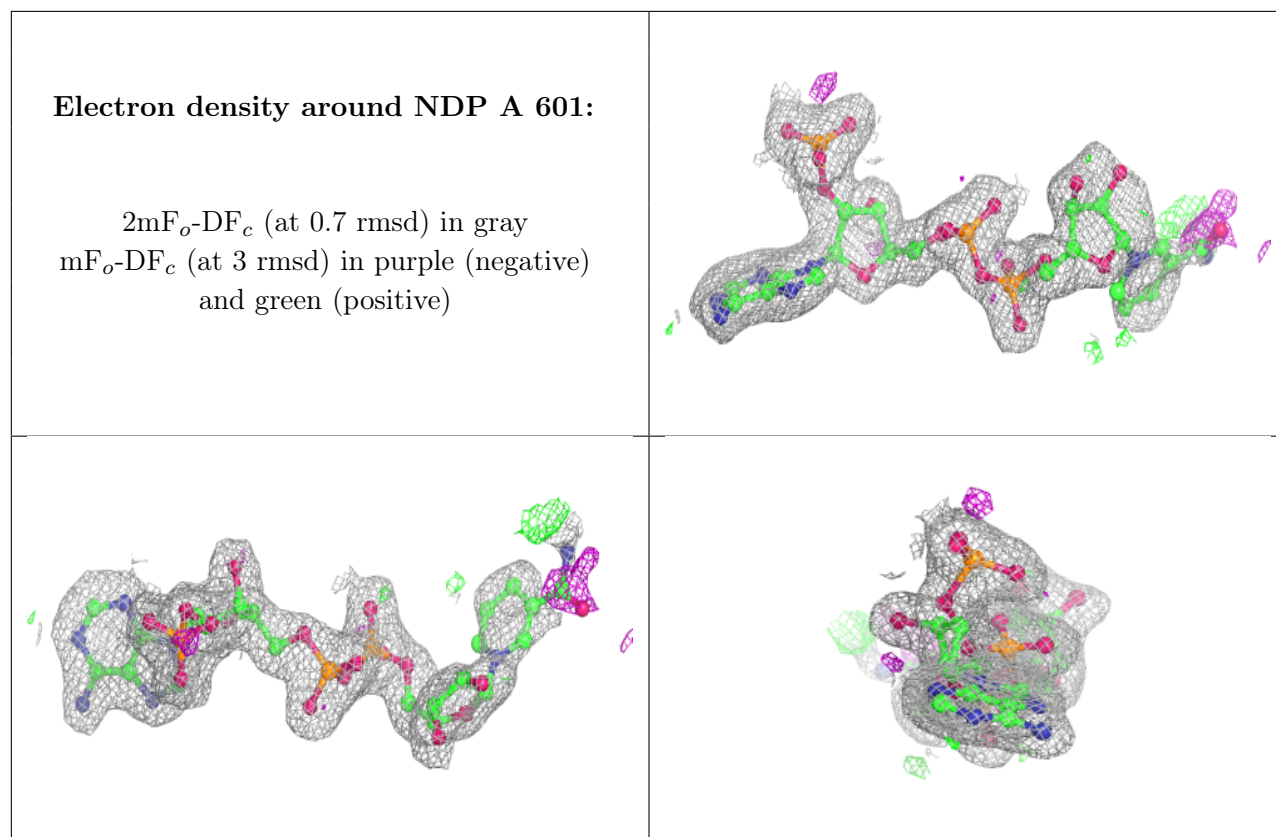
WORLDWIDE
wwPDB
PROTEIN DATA BANK

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
3	FAD	A	602	53/53	0.94	0.10	20,35,55,61	0
2	NDP	A	601	48/48	0.96	0.09	22,30,63,71	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 FAD A 602:

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

Electron density around NDP A 601:

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

6.5 Other polymers ⓘ

There are no such residues in this entry.