Full wwPDB X-ray Structure Validation Report (i)

Nov 19, 2024 – 04:44 PM EST

PDB ID	:	9E0A
Title	:	Structure of proline utilization A complexed with 1,4-benzenedimethanol
Authors	:	Tanner, J.J.; Meeks, K.R.
Deposited on	:	2024-10-17
Resolution	:	1.39 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the (i) symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

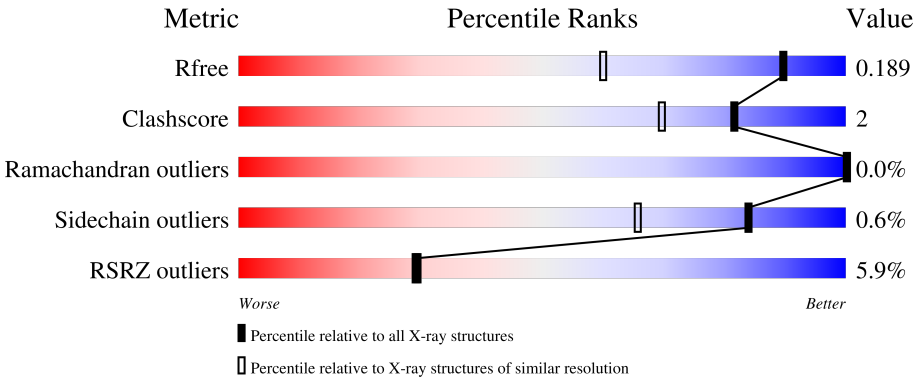
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.21
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 1.39 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	2247 (1.40-1.40)
Clashscore	180529	2446 (1.40-1.40)
Ramachandran outliers	177936	2398 (1.40-1.40)
Sidechain outliers	177891	2397 (1.40-1.40)
RSRZ outliers	164620	2246 (1.40-1.40)

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 <=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	1235	6% 92% 7% .
1	B	1235	6% 93% 5% .

2 Entry composition

There are 10 unique types of molecules in this entry. The entry contains 21016 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.

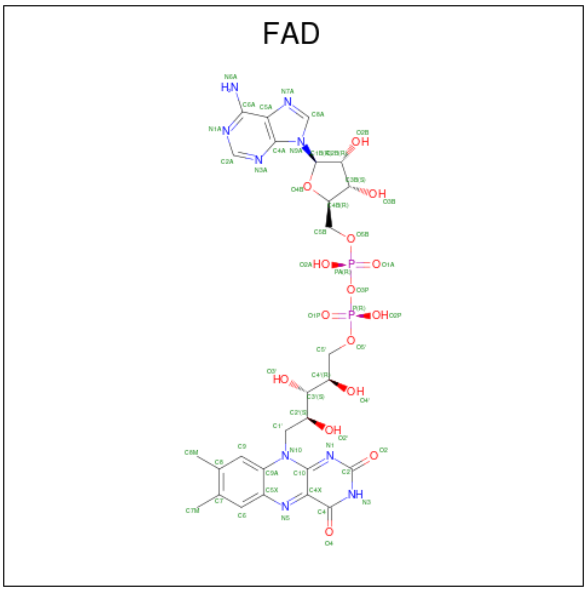
- Molecule 1 is a protein called Bifunctional protein PutA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	1216	Total	C	N	O	S	0	25	0
			9117	5758	1631	1693	35			
1	B	1212	Total	C	N	O	S	0	16	0
			9000	5674	1612	1680	34			

There are 4 discrepancies between the modelled and reference sequences:

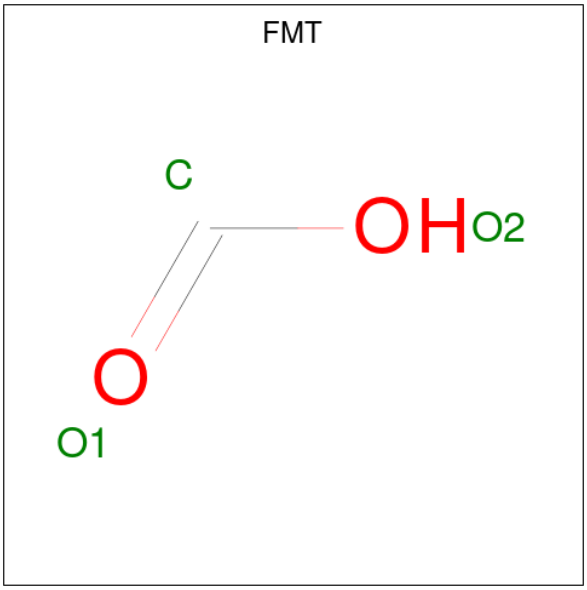
Chain	Residue	Modelled	Actual	Comment	Reference
A	-1	SER	-	expression tag	UNP F7X6I3
A	0	MET	-	expression tag	UNP F7X6I3
B	-1	SER	-	expression tag	UNP F7X6I3
B	0	MET	-	expression tag	UNP F7X6I3

- Molecule 2 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).



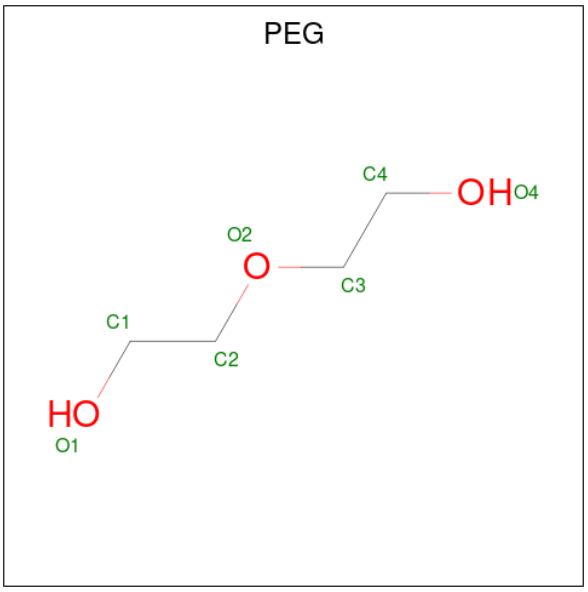
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	1
			106	54	18	30	4		
2	B	1	Total	C	N	O	P	0	1
			106	54	18	30	4		

- Molecule 3 is FORMIC ACID (three-letter code: FMT) (formula: CH_2O_2).



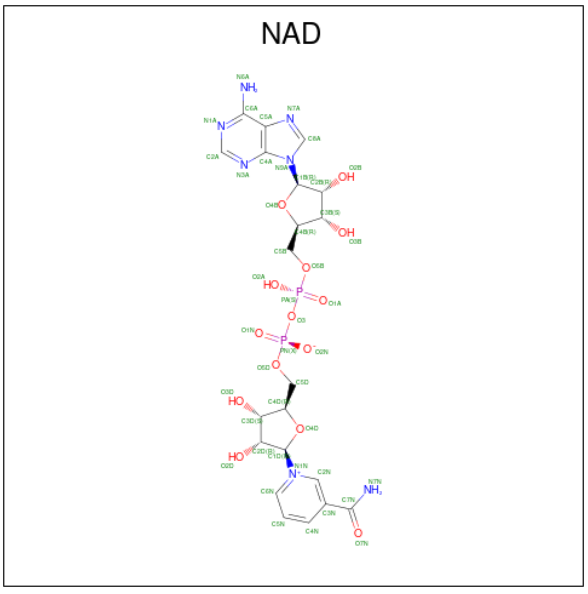
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			3	1	2		
3	B	1	Total	C	O	0	0
			3	1	2		

- Molecule 4 is DI(HYDROXYETHYL)ETHER (three-letter code: PEG) (formula: $C_4H_{10}O_3$).



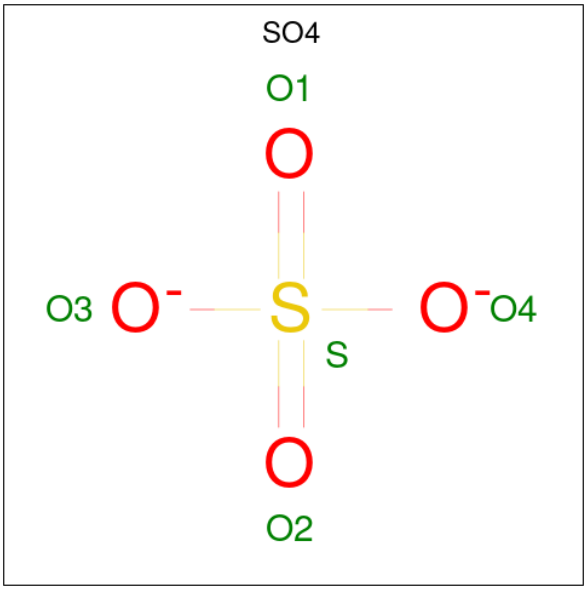
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total C O 7 4 3	0	0
4	A	1	Total C O 7 4 3	0	0
4	B	1	Total C O 7 4 3	0	0

- Molecule 5 is NICOTINAMIDE-ADENINE-DINUCLEOTIDE (three-letter code: NAD) (formula: $C_{21}H_{27}N_7O_{14}P_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total C N O P 44 21 7 14 2	0	0
5	B	1	Total C N O P 44 21 7 14 2	0	0

- Molecule 6 is SULFATE ION (three-letter code: SO4) (formula: O_4S).

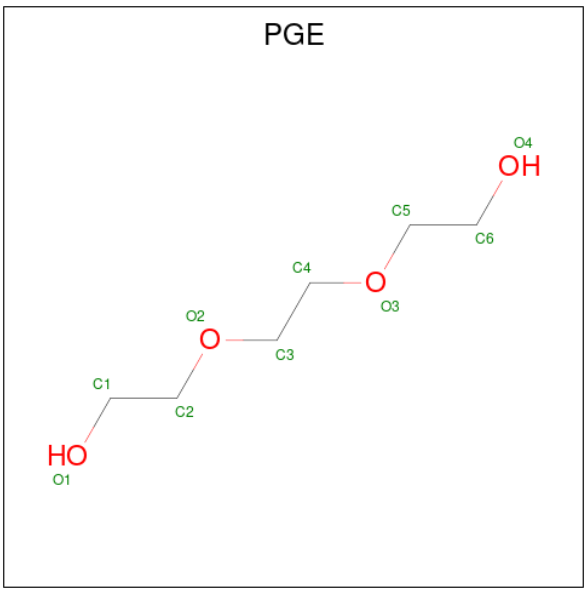


Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	1	Total O S 5 4 1	0	0
6	A	1	Total O S 5 4 1	0	0
6	A	1	Total O S 5 4 1	0	0
6	A	1	Total O S 5 4 1	0	0
6	A	1	Total O S 5 4 1	0	0
6	B	1	Total O S 5 4 1	0	0

- Molecule 7 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

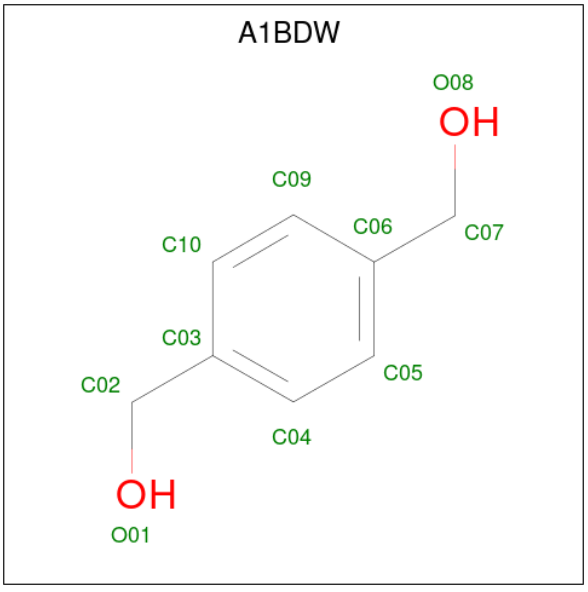
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	1	Total Mg 1 1	0	0
7	B	1	Total Mg 1 1	0	0

- Molecule 8 is TRIETHYLENE GLYCOL (three-letter code: PGE) (formula: $C_6H_{14}O_4$).



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

- Molecule 9 is (1,4-phenylene)dimethanol (three-letter code: A1BDW) (formula: $C_8H_{10}O_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
9	B	1	Total	C	O	0	0
			10	8	2		

- Molecule 10 is water.

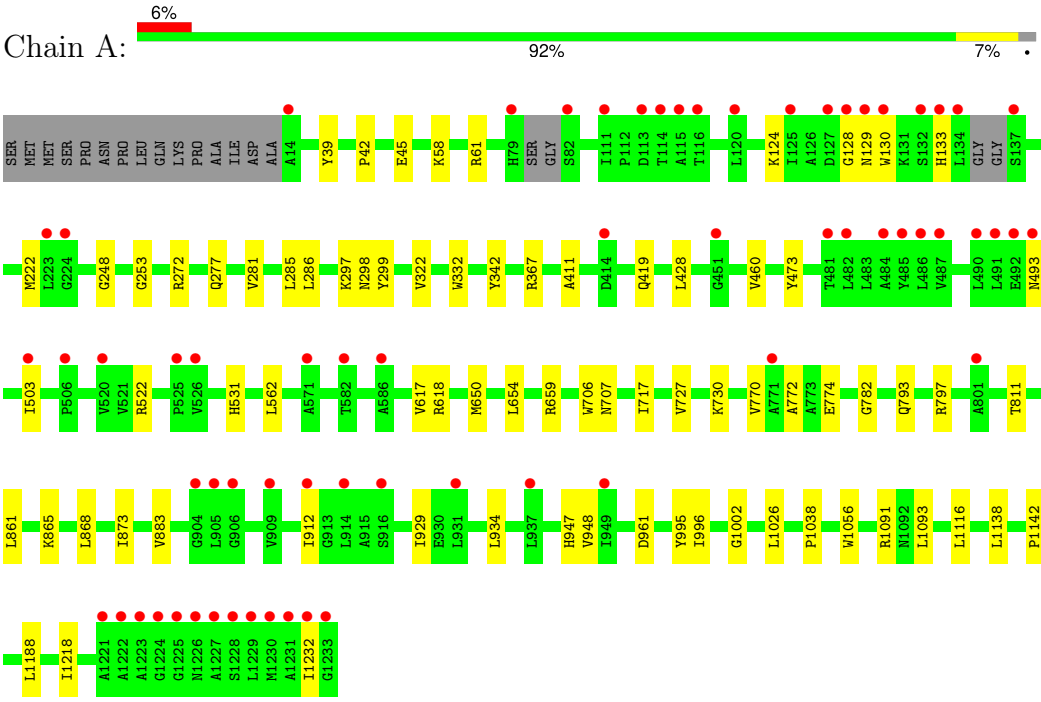
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
10	A	1234	Total O 1234 1234	0	0
10	B	1286	Total O 1286 1286	0	3

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.

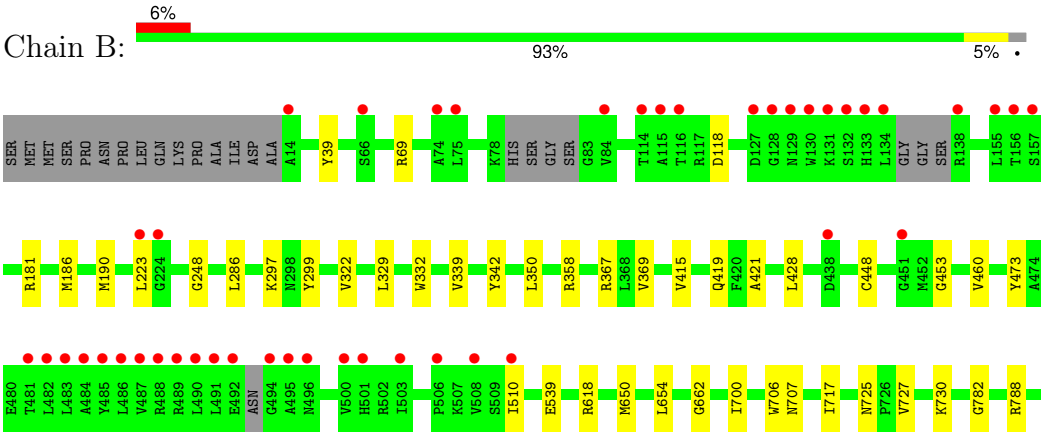
• Molecule 1: Bifunctional protein PutA

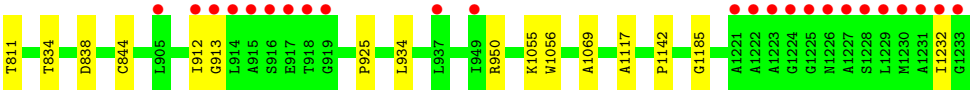
Chain A:



• Molecule 1: Bifunctional protein PutA

Chain B:




T811
T834
D838
C844
L905
I912
G913
L914
A915
S916
E917
T918
G919
P925
L934
L937
I949
R950
K1055
W1056
A1069
A1117
P1142
G1185
A1221
A1222
A1223
G1224
G1225
N1226
A1227
S1228
L1229
M1230
A1231
I1232
G1233

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	100.72Å 102.07Å 126.18Å 90.00° 106.38° 90.00°	Depositor
Resolution (Å)	47.03 – 1.39 47.03 – 1.39	Depositor EDS
% Data completeness (in resolution range)	97.5 (47.03-1.39) 98.2 (47.03-1.39)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.22 (at 1.39Å)	Xtriage
Refinement program	PHENIX 1.21rc1_5156	Depositor
R, R_{free}	0.172 , 0.191 0.170 , 0.189	Depositor DCC
R_{free} test set	24648 reflections (5.03%)	wwPDB-VP
Wilson B-factor (Å^2)	18.9	Xtriage
Anisotropy	0.278	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 33.0	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	0.97	EDS
Total number of atoms	21016	wwPDB-VP
Average B, all atoms (Å^2)	25.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.31% 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: A1BDW, MG, PGE, FAD, NAD, PEG, SO4, FMT

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	0.33	0/9336	0.61	0/12706
1	B	0.33	0/9209	0.62	0/12535
All	All	0.33	0/18545	0.61	0/25241

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	B	0	1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	912	ILE	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	9117	0	9187	50	0
1	B	9000	0	8996	37	0
2	A	106	0	62	5	0
2	B	106	0	62	3	0
3	A	3	0	1	0	0
3	B	3	0	1	0	0
4	A	14	0	20	1	0
4	B	7	0	10	0	0
5	A	44	0	26	2	0
5	B	44	0	26	2	0
6	A	25	0	0	1	0
6	B	5	0	0	0	0
7	A	1	0	0	0	0
7	B	1	0	0	0	0
8	B	10	0	14	0	0
9	B	10	0	0	0	0
10	A	1234	0	0	11	0
10	B	1286	0	0	5	0
All	All	21016	0	18405	89	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 2.

All (89) 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:844:CYS:SG	5:B:1306:NAD:C4N	2.76	0.73
1:A:873:ILE:HG13	1:A:883:VAL:HB	1.75	0.69
1:A:793:GLN:OE1	10:A:1401:HOH:O	2.12	0.68
1:A:473:TYR:HB2	2:A:1301[B]:FAD:HM72	1.72	0.68
1:A:844:CYS:SG	5:A:1305:NAD:C4N	2.81	0.68
1:B:297:LYS:HD2	1:B:329:LEU:HA	1.76	0.68
1:A:473:TYR:HB2	2:A:1301[A]:FAD:HM72	1.76	0.68
1:B:473:TYR:HB2	2:B:1301[A]:FAD:HM72	1.77	0.67
1:A:996[B]:ILE:HD12	1:A:1218:ILE:HG12	1.76	0.67
1:B:793:GLN:OE1	10:B:1401:HOH:O	2.14	0.66
1:B:473:TYR:HB2	2:B:1301[B]:FAD:HM72	1.78	0.66
1:A:861[A]:LEU:HD21	1:A:948:VAL:HG11	1.79	0.65
1:B:339:VAL:HG21	1:B:350:LEU:HD21	1.78	0.65
1:A:1183:LEU:O	10:A:1402:HOH:O	2.14	0.64
1:A:286:LEU:HD21	1:A:322:VAL:HG11	1.79	0.63
1:B:539:GLU:OE1	10:B:1402:HOH:O	2.15	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:961:ASP:OD2	1:B:1055:LYS:NZ	2.31	0.63
1:B:286:LEU:HD21	1:B:322:VAL:HG11	1.83	0.61
1:A:493:ASN:HB3	1:A:500:VAL:HB	1.85	0.59
1:B:650:MET:O	1:B:654:LEU:HG	2.03	0.58
1:A:281:VAL:HG13	1:A:285[B]:LEU:HD23	1.87	0.57
1:A:618:ARG:NH2	10:A:1422:HOH:O	2.38	0.56
6:A:1308:SO4:O2	10:A:1404:HOH:O	2.18	0.54
1:B:618:ARG:NH2	10:B:1419:HOH:O	2.41	0.53
1:A:473:TYR:CB	2:A:1301[A]:FAD:HM72	2.38	0.53
1:B:297:LYS:HG3	1:B:332:TRP:HB2	1.91	0.52
1:A:770:VAL:O	1:A:797[A]:ARG:NH1	2.39	0.52
1:B:1056:TRP:CD1	1:B:1142:PRO:HD3	2.45	0.52
1:A:1026:LEU:HD23	1:A:1038:PRO:HG2	1.91	0.52
1:A:42:PRO:HB2	1:A:45:GLU:HG3	1.93	0.51
1:A:1116[B]:LEU:HD11	1:A:1138:LEU:HD11	1.91	0.51
1:A:411:ALA:HA	4:A:1303:PEG:H21	1.94	0.50
1:B:782:GLY:O	1:B:811:THR:HA	2.11	0.50
1:B:950:ARG:NH1	10:B:1407:HOH:O	2.30	0.50
1:B:118:ASP:OD1	1:B:181:ARG:NH2	2.45	0.49
1:B:844:CYS:SG	5:B:1306:NAD:C3N	3.01	0.49
1:A:995:TYR:OH	1:A:1002[A]:GLY:O	2.29	0.48
1:A:844:CYS:SG	5:A:1305:NAD:C3N	3.02	0.48
1:A:861[B]:LEU:HG	1:A:865:LYS:HE3	1.96	0.48
1:B:788:ARG:NH2	1:B:1185:GLY:O	2.44	0.48
1:B:706:TRP:CE3	1:B:707:ASN:HA	2.50	0.47
1:B:834:THR:O	1:B:838:ASP:HB3	2.14	0.47
1:A:1056:TRP:CD1	1:A:1142:PRO:HD3	2.49	0.47
1:A:58:LYS:HD3	1:A:61:ARG:NH2	2.30	0.47
1:A:1180:ILE:HG23	1:A:1188:LEU:HD12	1.97	0.47
1:A:782:GLY:O	1:A:811:THR:HA	2.15	0.47
1:A:772:ALA:O	1:A:797[A]:ARG:NH2	2.48	0.46
1:B:223:LEU:HD21	1:B:475:PRO:HB3	1.98	0.46
1:B:69[A]:ARG:HD3	1:B:510:ILE:HG21	1.98	0.46
1:A:617:VAL:HG12	1:A:774:GLU:HB2	1.96	0.46
1:A:650:MET:O	1:A:654:LEU:HG	2.15	0.46
1:B:159:VAL:HG13	1:B:164:LEU:HD12	1.96	0.46
1:A:859:ARG:NE	10:A:1444:HOH:O	2.48	0.46
1:A:428:LEU:HD11	1:A:460:VAL:HG21	1.98	0.46
1:A:562:LEU:HD11	1:A:654:LEU:HD12	1.98	0.45
1:B:473:TYR:CB	2:B:1301[A]:FAD:HM72	2.45	0.45
1:A:706:TRP:CE3	1:A:707:ASN:HA	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:995:TYR:OH	10:A:1403:HOH:O	2.17	0.45
1:B:358[A]:ARG:HG3	1:B:415:VAL:HG11	1.98	0.45
1:A:272:ARG:HB3	1:A:277:GLN:HG3	1.99	0.44
1:A:248:GLY:HA3	1:A:299:TYR:CG	2.52	0.44
1:A:298:ASN:ND2	10:A:1423:HOH:O	2.39	0.43
1:B:428:LEU:HD11	1:B:460:VAL:HG21	2.00	0.43
1:B:662:GLY:HA2	10:B:1522:HOH:O	2.18	0.43
1:B:186:MET:O	1:B:190:MET:HG3	2.18	0.43
2:A:1301[A]:FAD:H9	2:A:1301[A]:FAD:H1'1	1.70	0.43
1:A:659:ARG:HD3	10:A:1843:HOH:O	2.18	0.43
1:A:222:MET:HG2	10:A:1480:HOH:O	2.18	0.42
1:A:1091[B]:ARG:HG2	1:A:1093:LEU:HD21	2.01	0.42
1:A:868:LEU:O	1:A:912:ILE:HD11	2.19	0.42
1:B:717:ILE:HG12	1:B:727:VAL:HG11	2.02	0.42
1:B:1069:ALA:HA	1:B:1117:ALA:HB1	2.01	0.42
1:A:297[B]:LYS:HG3	1:A:332:TRP:HB2	2.01	0.42
1:B:367:ARG:HA	1:B:419:GLN:HB2	2.02	0.42
1:A:873:ILE:HD13	1:A:912:ILE:HG21	2.01	0.42
1:A:717:ILE:HG12	1:A:727:VAL:HG11	2.01	0.42
1:B:448:CYS:HB2	1:B:453:GLY:HA3	2.01	0.42
1:A:124:LYS:HD2	1:A:133:HIS:NE2	2.36	0.41
1:B:369:VAL:HG12	1:B:421:ALA:HB3	2.01	0.41
1:A:929:ILE:O	1:A:947:HIS:HA	2.20	0.41
1:A:128:GLY:O	1:A:130:TRP:N	2.54	0.41
1:A:253:GLY:HA2	10:A:2280:HOH:O	2.20	0.41
1:A:531:HIS:CE1	1:A:1232:ILE:HG23	2.55	0.41
1:B:913:GLY:HA2	1:B:925:PRO:HB3	2.03	0.41
2:A:1301[B]:FAD:H8A	10:A:2030:HOH:O	2.21	0.40
1:A:367:ARG:HA	1:A:419:GLN:HB2	2.03	0.40
1:B:248:GLY:HA3	1:B:299:TYR:CG	2.57	0.40
1:B:913:GLY:HA2	1:B:925:PRO:CB	2.52	0.40
1:B:700[B]:ILE:HG12	1:B:725:ASN:HB3	2.03	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	1235/1235 (100%)	1213 (98%)	21 (2%)	1 (0%)	48 22
1	B	1221/1235 (99%)	1199 (98%)	22 (2%)	0	100 100
All	All	2456/2470 (99%)	2412 (98%)	43 (2%)	1 (0%)	100 100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	129	ASN

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	915/951 (96%)	909 (99%)	6 (1%)	81 61
1	B	896/951 (94%)	891 (99%)	5 (1%)	84 66
All	All	1811/1902 (95%)	1800 (99%)	11 (1%)	84 66

All (11) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	39	TYR
1	A	342	TYR
1	A	503	ILE
1	A	522	ARG
1	A	730	LYS
1	A	934	LEU
1	B	39	TYR
1	B	342	TYR
1	B	730	LYS
1	B	934	LEU
1	B	1232	ILE

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

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

Of 21 ligands modelled in this entry, 2 are monoatomic - leaving 19 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
6	SO4	A	1309	-	4,4,4	0.68	0	6,6,6	0.11	0
5	NAD	A	1305	7	42,48,48	2.18	13 (30%)	50,73,73	1.61	5 (10%)
4	PEG	A	1303	-	6,6,6	0.25	0	5,5,5	0.23	0
6	SO4	A	1308	-	4,4,4	0.66	0	6,6,6	0.13	0
9	A1BDW	B	1304	-	10,10,10	0.27	0	12,12,12	1.04	0
4	PEG	A	1304	-	6,6,6	0.27	0	5,5,5	0.23	0
2	FAD	B	1301[B]	-	54,58,58	2.51	18 (33%)	71,89,89	1.48	10 (14%)
2	FAD	A	1301[B]	-	54,58,58	2.33	16 (29%)	71,89,89	1.48	12 (16%)
5	NAD	B	1306	7	42,48,48	2.14	7 (16%)	50,73,73	1.59	5 (10%)
8	PGE	B	1302	-	9,9,9	0.33	0	8,8,8	0.51	0
4	PEG	B	1305	-	6,6,6	0.26	0	5,5,5	0.28	0
6	SO4	A	1306	-	4,4,4	0.57	0	6,6,6	0.30	0
6	SO4	A	1307	-	4,4,4	0.69	0	6,6,6	0.21	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
2	FAD	B	1301[A]	-	54,58,58	2.24	15 (27%)	71,89,89	1.48	9 (12%)
2	FAD	A	1301[A]	-	54,58,58	2.29	16 (29%)	71,89,89	1.48	7 (9%)
3	FMT	B	1303	-	2,2,2	0.81	0	1,1,1	0.23	0
3	FMT	A	1302	-	2,2,2	0.48	0	1,1,1	0.24	0
6	SO4	A	1310	-	4,4,4	0.63	0	6,6,6	0.20	0
6	SO4	B	1307	-	4,4,4	0.58	0	6,6,6	0.28	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	FAD	B	1301[A]	-	-	3/30/50/50	0/6/6/6
2	FAD	A	1301[A]	-	-	3/30/50/50	0/6/6/6
4	PEG	A	1304	-	-	1/4/4/4	-
8	PGE	B	1302	-	-	2/7/7/7	-
5	NAD	A	1305	7	-	1/26/62/62	0/5/5/5
9	A1BDW	B	1304	-	-	0/4/4/4	0/1/1/1
4	PEG	B	1305	-	-	1/4/4/4	-
2	FAD	B	1301[B]	-	-	8/30/50/50	0/6/6/6
4	PEG	A	1303	-	-	2/4/4/4	-
2	FAD	A	1301[B]	-	-	10/30/50/50	0/6/6/6
5	NAD	B	1306	7	-	1/26/62/62	0/5/5/5

All (85) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	1301[B]	FAD	PA-O3P	-10.79	1.47	1.59
2	B	1301[A]	FAD	PA-O3P	-9.87	1.48	1.59
2	A	1301[A]	FAD	PA-O3P	-9.55	1.49	1.59
2	A	1301[B]	FAD	PA-O3P	-9.54	1.49	1.59
5	B	1306	NAD	PA-O3	-7.63	1.51	1.59
2	B	1301[B]	FAD	O4-C4	7.39	1.37	1.23
5	A	1305	NAD	PA-O3	-6.95	1.52	1.59
2	A	1301[A]	FAD	O4-C4	6.83	1.36	1.23
2	A	1301[B]	FAD	O4-C4	6.74	1.36	1.23
5	A	1305	NAD	C2N-N1N	6.60	1.42	1.35
2	B	1301[A]	FAD	O4-C4	6.46	1.35	1.23
5	B	1306	NAD	C2N-N1N	6.32	1.41	1.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	1301[B]	FAD	O2-C2	5.84	1.35	1.24
2	A	1301[B]	FAD	O2-C2	4.97	1.34	1.24
5	B	1306	NAD	C7N-N7N	4.93	1.42	1.33
5	A	1305	NAD	C7N-N7N	4.90	1.42	1.33
2	B	1301[A]	FAD	O2-C2	4.58	1.33	1.24
2	A	1301[A]	FAD	O2-C2	4.35	1.33	1.24
2	A	1301[A]	FAD	C4X-N5	4.21	1.39	1.30
2	B	1301[B]	FAD	C4X-N5	4.05	1.39	1.30
2	B	1301[A]	FAD	C4X-N5	3.97	1.39	1.30
2	A	1301[B]	FAD	C4X-N5	3.90	1.39	1.30
2	A	1301[B]	FAD	P-O3P	3.58	1.63	1.59
2	B	1301[B]	FAD	C2-N1	3.30	1.44	1.36
2	A	1301[A]	FAD	P-O3P	3.18	1.62	1.59
2	A	1301[B]	FAD	C2-N1	3.18	1.43	1.36
2	A	1301[B]	FAD	O2'-C2'	-3.10	1.36	1.43
2	A	1301[A]	FAD	PA-O5B	-2.99	1.47	1.59
2	B	1301[B]	FAD	C6A-N6A	2.91	1.44	1.34
2	A	1301[A]	FAD	O2'-C2'	-2.91	1.37	1.43
2	A	1301[B]	FAD	C6A-N6A	2.89	1.44	1.34
2	A	1301[A]	FAD	C6A-N6A	2.88	1.44	1.34
2	A	1301[B]	FAD	PA-O5B	-2.88	1.48	1.59
5	B	1306	NAD	C6A-N6A	2.82	1.44	1.34
2	B	1301[A]	FAD	C6A-N6A	2.78	1.44	1.34
2	B	1301[B]	FAD	O2'-C2'	-2.75	1.37	1.43
5	A	1305	NAD	C6N-N1N	2.75	1.41	1.35
2	A	1301[B]	FAD	C2A-N3A	2.71	1.36	1.32
2	B	1301[B]	FAD	PA-O5B	-2.69	1.48	1.59
2	A	1301[A]	FAD	O4'-C4'	-2.69	1.37	1.43
5	A	1305	NAD	C6A-N6A	2.69	1.43	1.34
5	A	1305	NAD	C2A-N3A	2.69	1.36	1.32
2	B	1301[B]	FAD	C2A-N3A	2.68	1.36	1.32
2	B	1301[B]	FAD	C10-N1	2.63	1.38	1.33
2	A	1301[A]	FAD	C2A-N3A	2.61	1.36	1.32
2	B	1301[A]	FAD	O2'-C2'	-2.55	1.38	1.43
2	B	1301[B]	FAD	O4'-C4'	-2.53	1.38	1.43
2	B	1301[B]	FAD	P-O3P	2.53	1.62	1.59
2	A	1301[A]	FAD	O4B-C4B	-2.48	1.39	1.45
2	A	1301[A]	FAD	C2-N1	2.48	1.42	1.36
2	A	1301[B]	FAD	O4B-C4B	-2.47	1.39	1.45
5	A	1305	NAD	O3D-C3D	-2.42	1.37	1.43
2	B	1301[A]	FAD	C2A-N3A	2.42	1.35	1.32
2	A	1301[B]	FAD	O4'-C4'	-2.39	1.38	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	1301[A]	FAD	O4B-C4B	-2.38	1.39	1.45
2	B	1301[B]	FAD	O4B-C4B	-2.36	1.39	1.45
2	B	1301[B]	FAD	O2B-C2B	-2.36	1.37	1.43
2	B	1301[A]	FAD	C2-N1	2.33	1.41	1.36
2	B	1301[A]	FAD	O4'-C4'	-2.33	1.38	1.43
2	B	1301[A]	FAD	P-O3P	2.32	1.62	1.59
2	A	1301[B]	FAD	C10-N1	2.31	1.37	1.33
5	A	1305	NAD	PA-O5B	-2.30	1.50	1.59
5	A	1305	NAD	C1B-N9A	-2.30	1.44	1.49
2	B	1301[B]	FAD	PA-O2A	-2.29	1.44	1.55
5	B	1306	NAD	C1B-N9A	-2.28	1.44	1.49
2	B	1301[A]	FAD	C1B-N9A	-2.27	1.44	1.49
2	B	1301[A]	FAD	O2B-C2B	-2.25	1.37	1.43
5	B	1306	NAD	C6N-N1N	2.24	1.40	1.35
2	B	1301[B]	FAD	C1B-N9A	-2.22	1.44	1.49
2	A	1301[B]	FAD	PA-O2A	-2.21	1.45	1.55
2	A	1301[A]	FAD	PA-O2A	-2.21	1.45	1.55
2	B	1301[A]	FAD	PA-O2A	-2.19	1.45	1.55
5	A	1305	NAD	C2D-C3D	-2.17	1.47	1.53
5	B	1306	NAD	C2A-N3A	2.16	1.35	1.32
5	A	1305	NAD	C2B-C3B	-2.14	1.47	1.53
2	A	1301[B]	FAD	C1B-N9A	-2.12	1.44	1.49
5	A	1305	NAD	O4D-C4D	-2.10	1.40	1.45
2	A	1301[A]	FAD	C10-N1	2.09	1.37	1.33
2	B	1301[B]	FAD	P-O1P	2.09	1.58	1.50
2	A	1301[A]	FAD	O3'-C3'	-2.08	1.37	1.43
5	A	1305	NAD	PA-O2A	-2.06	1.45	1.55
2	A	1301[A]	FAD	C1B-N9A	-2.03	1.44	1.49
2	B	1301[A]	FAD	P-O1P	2.02	1.57	1.50
2	A	1301[B]	FAD	P-O1P	2.02	1.57	1.50
2	B	1301[B]	FAD	O3'-C3'	-2.02	1.38	1.43

All (48) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	B	1306	NAD	N3A-C2A-N1A	-7.31	118.75	128.67
5	A	1305	NAD	N3A-C2A-N1A	-7.07	119.07	128.67
2	A	1301[A]	FAD	N3A-C2A-N1A	-6.43	119.94	128.67
2	A	1301[B]	FAD	N3A-C2A-N1A	-6.36	120.04	128.67
2	B	1301[B]	FAD	N3A-C2A-N1A	-6.18	120.29	128.67
2	B	1301[A]	FAD	N3A-C2A-N1A	-5.82	120.77	128.67
5	A	1305	NAD	C4B-O4B-C1B	-4.54	105.77	109.92

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	B	1306	NAD	C4B-O4B-C1B	-4.18	106.09	109.92
2	B	1301[A]	FAD	O2-C2-N1	-3.57	115.87	121.80
2	A	1301[A]	FAD	C4-C4X-N5	3.48	123.02	118.21
5	A	1305	NAD	C4D-O4D-C1D	-3.47	106.74	109.92
2	A	1301[B]	FAD	O2A-PA-O3P	-3.13	98.82	107.27
2	A	1301[B]	FAD	C4-N3-C2	-3.08	120.18	125.64
2	A	1301[A]	FAD	C9-C9A-N10	-3.05	117.75	121.85
2	A	1301[A]	FAD	C5X-C9A-N10	3.01	120.69	117.97
2	B	1301[A]	FAD	C9-C9A-N10	-3.00	117.82	121.85
2	B	1301[B]	FAD	O2P-P-O3P	-2.98	99.21	107.27
2	B	1301[A]	FAD	C4-C4X-N5	2.91	122.23	118.21
2	A	1301[B]	FAD	O2P-P-O3P	-2.88	99.50	107.27
2	A	1301[B]	FAD	C4-C4X-N5	2.88	122.18	118.21
2	B	1301[A]	FAD	C5X-C9A-N10	2.85	120.55	117.97
2	B	1301[A]	FAD	C4-N3-C2	-2.85	120.58	125.64
5	B	1306	NAD	C3N-C7N-N7N	2.83	121.22	117.74
2	B	1301[B]	FAD	O2A-PA-O3P	-2.82	99.65	107.27
2	A	1301[B]	FAD	C4X-C4-N3	2.76	120.27	113.25
2	B	1301[B]	FAD	C4-N3-C2	-2.75	120.75	125.64
2	A	1301[A]	FAD	C4X-C4-N3	2.73	120.20	113.25
2	A	1301[A]	FAD	C4-N3-C2	-2.72	120.80	125.64
2	B	1301[B]	FAD	C4-C4X-N5	2.66	121.89	118.21
5	B	1306	NAD	C4D-O4D-C1D	-2.56	107.58	109.92
2	B	1301[B]	FAD	C4X-C4-N3	2.54	119.73	113.25
2	B	1301[A]	FAD	C4X-C10-N10	2.46	120.00	116.48
2	A	1301[B]	FAD	O4-C4-C4X	-2.40	120.21	126.53
2	B	1301[A]	FAD	C4X-C4-N3	2.38	119.32	113.25
2	B	1301[B]	FAD	O3P-P-O1P	2.30	117.62	110.70
2	A	1301[B]	FAD	C5X-C9A-N10	2.29	120.04	117.97
2	A	1301[A]	FAD	O4-C4-C4X	-2.27	120.54	126.53
2	B	1301[B]	FAD	C5X-C9A-N10	2.26	120.01	117.97
2	B	1301[B]	FAD	O4-C4-C4X	-2.25	120.59	126.53
2	B	1301[A]	FAD	C2'-C1'-N10	2.21	120.63	110.20
2	B	1301[B]	FAD	C10-C4X-N5	-2.16	120.39	124.81
2	A	1301[B]	FAD	C4B-O4B-C1B	-2.15	107.96	109.92
2	A	1301[B]	FAD	O5'-P-O1P	2.10	117.25	108.94
5	B	1306	NAD	C1B-N9A-C4A	-2.08	122.98	126.64
2	A	1301[B]	FAD	C10-C4X-N5	-2.05	120.61	124.81
5	A	1305	NAD	O2N-PN-O3	2.02	112.74	107.27
2	A	1301[B]	FAD	C4X-C10-N1	-2.01	119.67	124.59
5	A	1305	NAD	C1B-N9A-C4A	-2.01	123.12	126.64

There are no chirality outliers.

All (32) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	1301[A]	FAD	N10-C1'-C2'-O2'
2	A	1301[A]	FAD	N10-C1'-C2'-C3'
2	A	1301[B]	FAD	C5B-O5B-PA-O3P
2	B	1301[A]	FAD	N10-C1'-C2'-O2'
2	B	1301[A]	FAD	N10-C1'-C2'-C3'
2	B	1301[B]	FAD	C5B-O5B-PA-O3P
2	A	1301[B]	FAD	C2'-C3'-C4'-O4'
2	B	1301[B]	FAD	C3B-C4B-C5B-O5B
4	A	1303	PEG	O2-C3-C4-O4
2	A	1301[B]	FAD	C2'-C3'-C4'-C5'
2	A	1301[B]	FAD	C3B-C4B-C5B-O5B
2	B	1301[B]	FAD	C2'-C3'-C4'-O4'
2	A	1301[B]	FAD	O3'-C3'-C4'-O4'
2	B	1301[B]	FAD	O4B-C4B-C5B-O5B
2	A	1301[A]	FAD	P-O3P-PA-O5B
2	A	1301[B]	FAD	PA-O3P-P-O5'
2	B	1301[A]	FAD	P-O3P-PA-O5B
2	B	1301[B]	FAD	P-O3P-PA-O5B
4	A	1303	PEG	C1-C2-O2-C3
4	A	1304	PEG	O2-C3-C4-O4
2	A	1301[B]	FAD	O3'-C3'-C4'-C5'
8	B	1302	PGE	C4-C3-O2-C2
5	A	1305	NAD	C4D-C5D-O5D-PN
4	B	1305	PEG	O2-C3-C4-O4
8	B	1302	PGE	O1-C1-C2-O2
5	B	1306	NAD	C4D-C5D-O5D-PN
2	B	1301[B]	FAD	O3'-C3'-C4'-O4'
2	A	1301[B]	FAD	C4'-C5'-O5'-P
2	B	1301[B]	FAD	C4'-C5'-O5'-P
2	A	1301[B]	FAD	P-O3P-PA-O5B
2	A	1301[B]	FAD	O4B-C4B-C5B-O5B
2	B	1301[B]	FAD	O3'-C3'-C4'-C5'

There are no ring outliers.

8 monomers are involved in 14 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	A	1305	NAD	2	0
4	A	1303	PEG	1	0
6	A	1308	SO4	1	0
2	B	1301[B]	FAD	1	0

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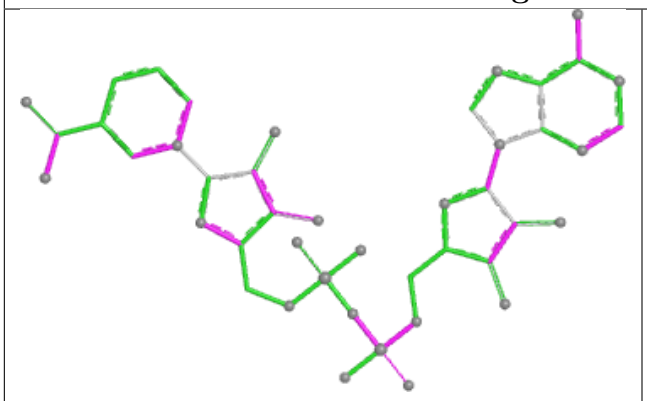
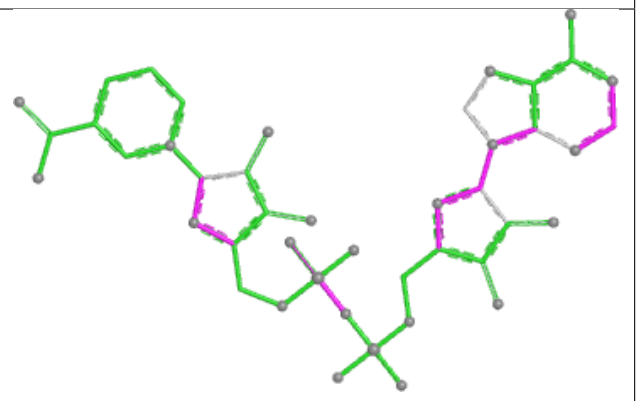
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	1301[B]	FAD	2	0
5	B	1306	NAD	2	0
2	B	1301[A]	FAD	2	0
2	A	1301[A]	FAD	3	0

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.

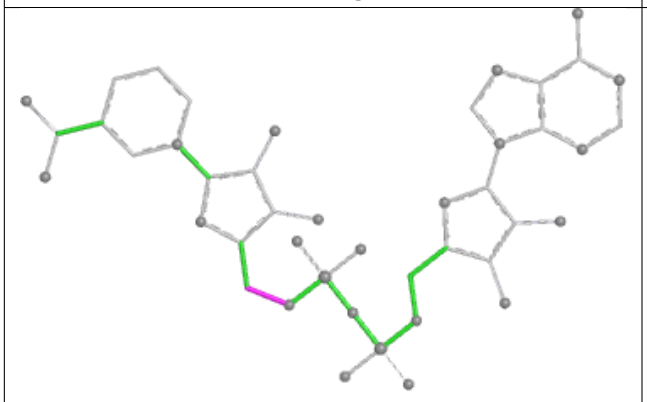
Ligand NAD A 1305



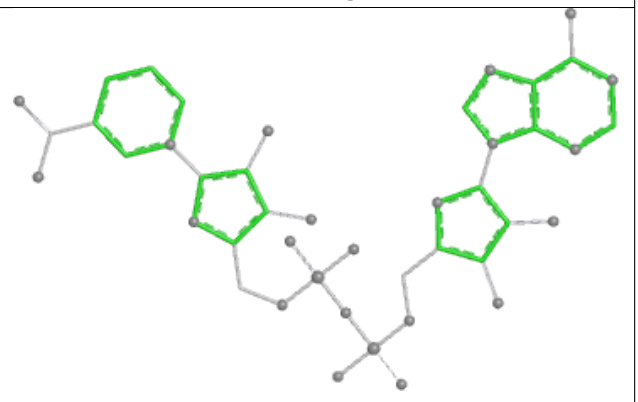
Bond lengths



Bond angles

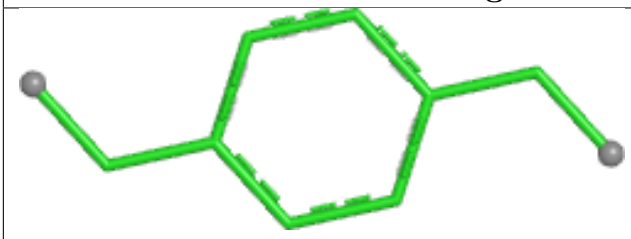


Torsions

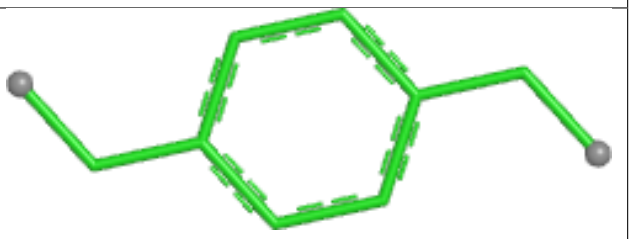


Rings

Ligand A1BDW B 1304



Bond lengths

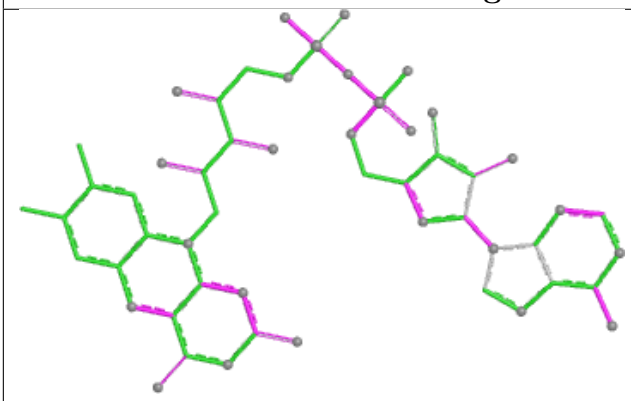


Bond angles

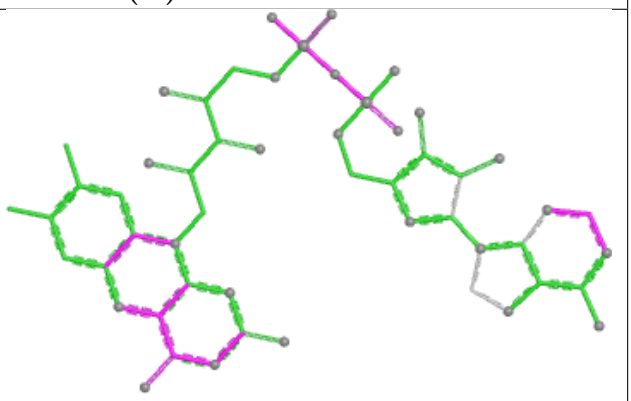
Torsions

Rings

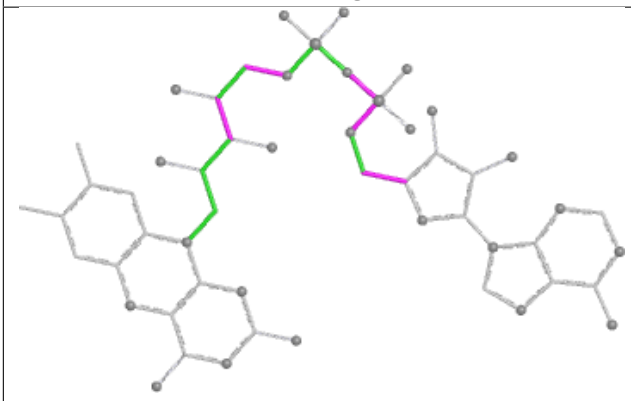
Ligand FAD B 1301 (B)



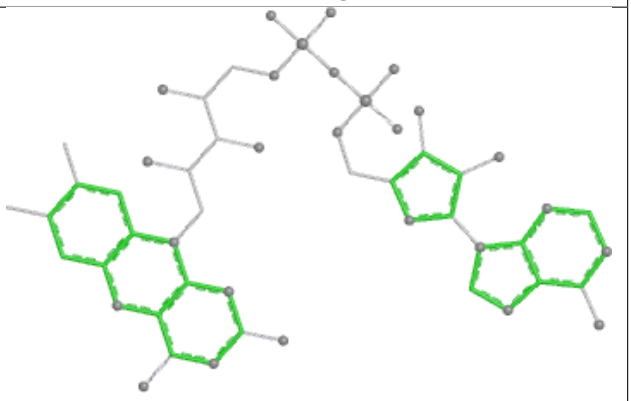
Bond lengths



Bond angles

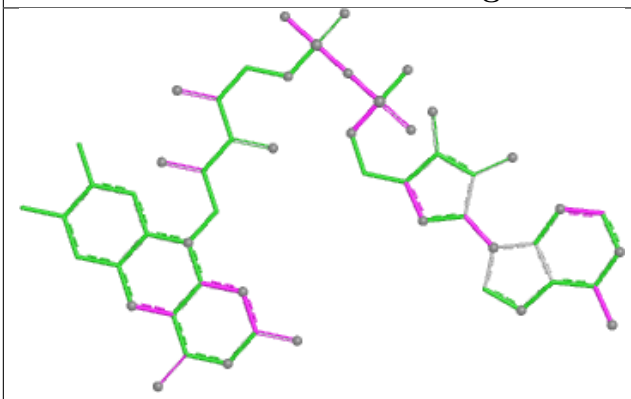


Torsions

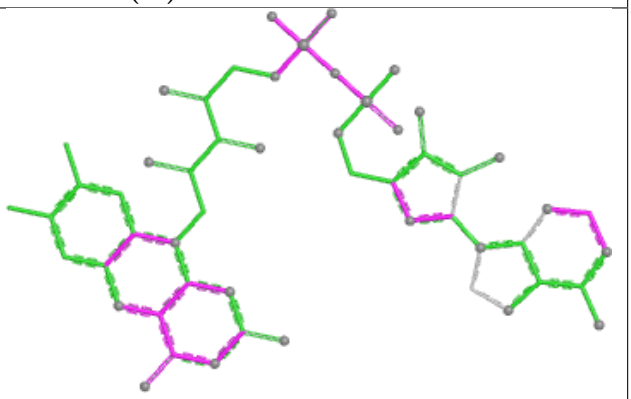


Rings

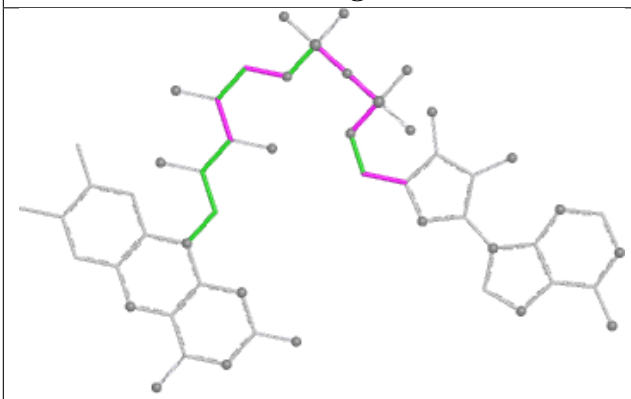
Ligand FAD A 1301 (B)



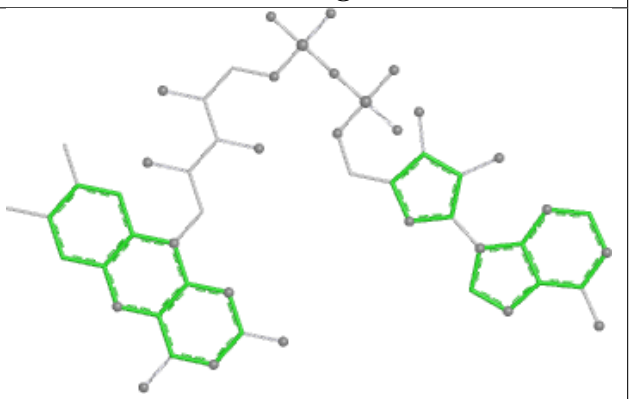
Bond lengths



Bond angles

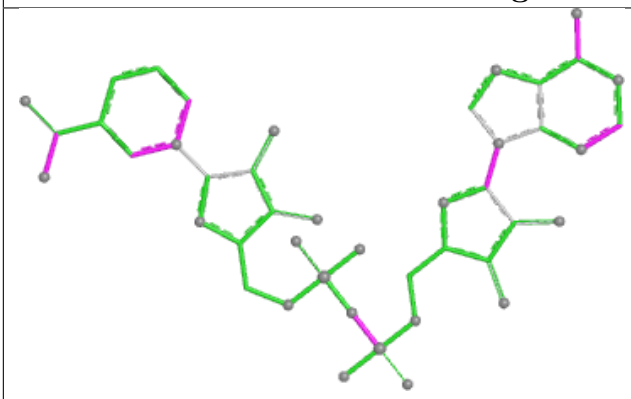


Torsions

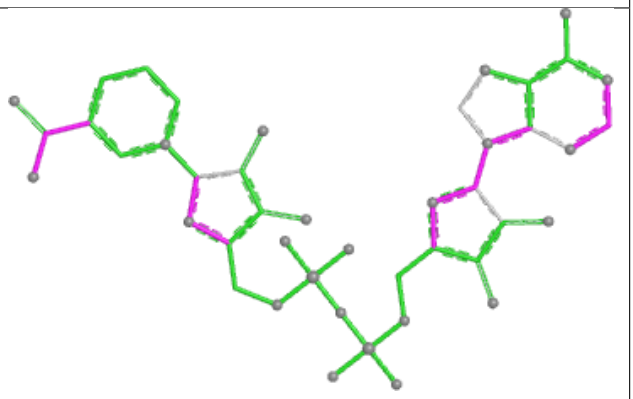


Rings

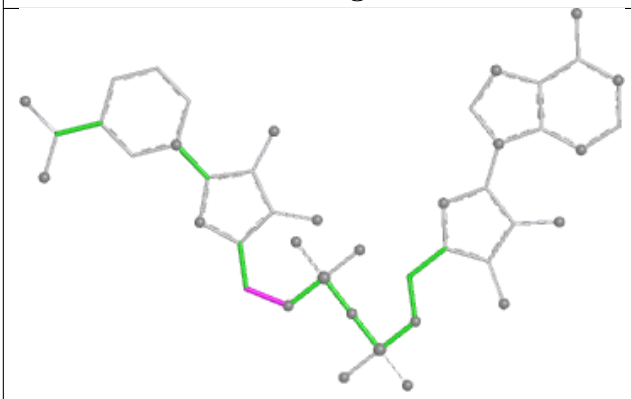
Ligand NAD B 1306



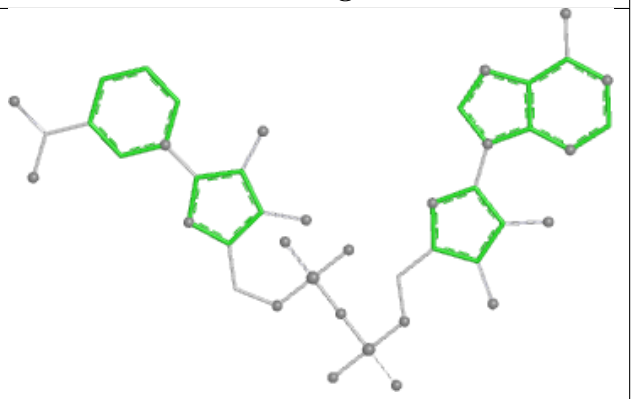
Bond lengths



Bond angles

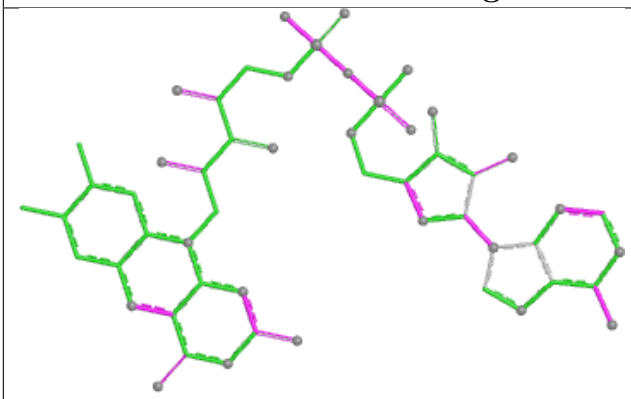


Torsions

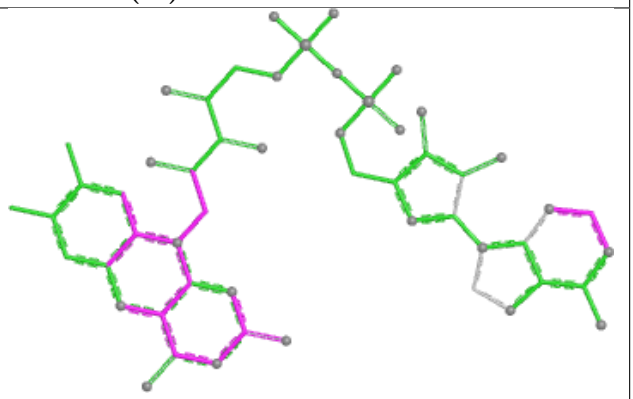


Rings

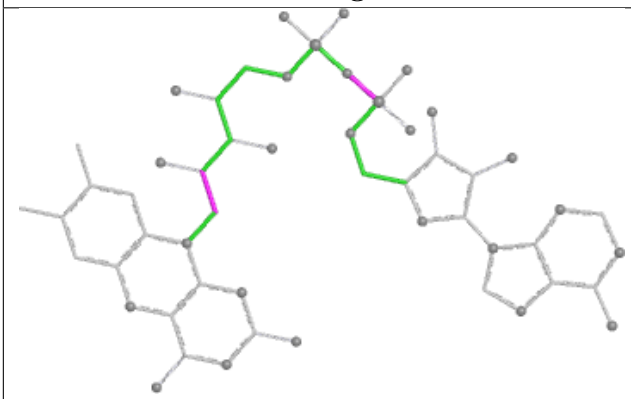
Ligand FAD B 1301 (A)



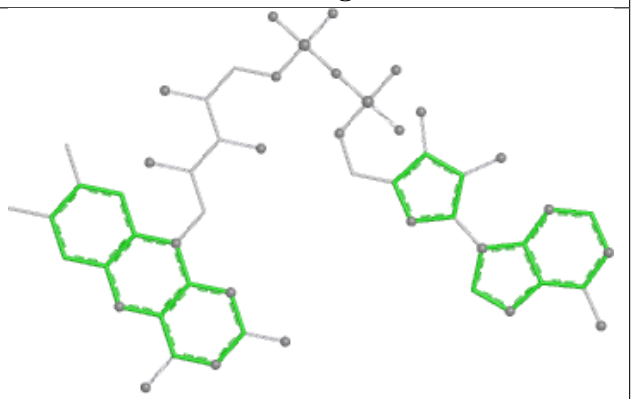
Bond lengths



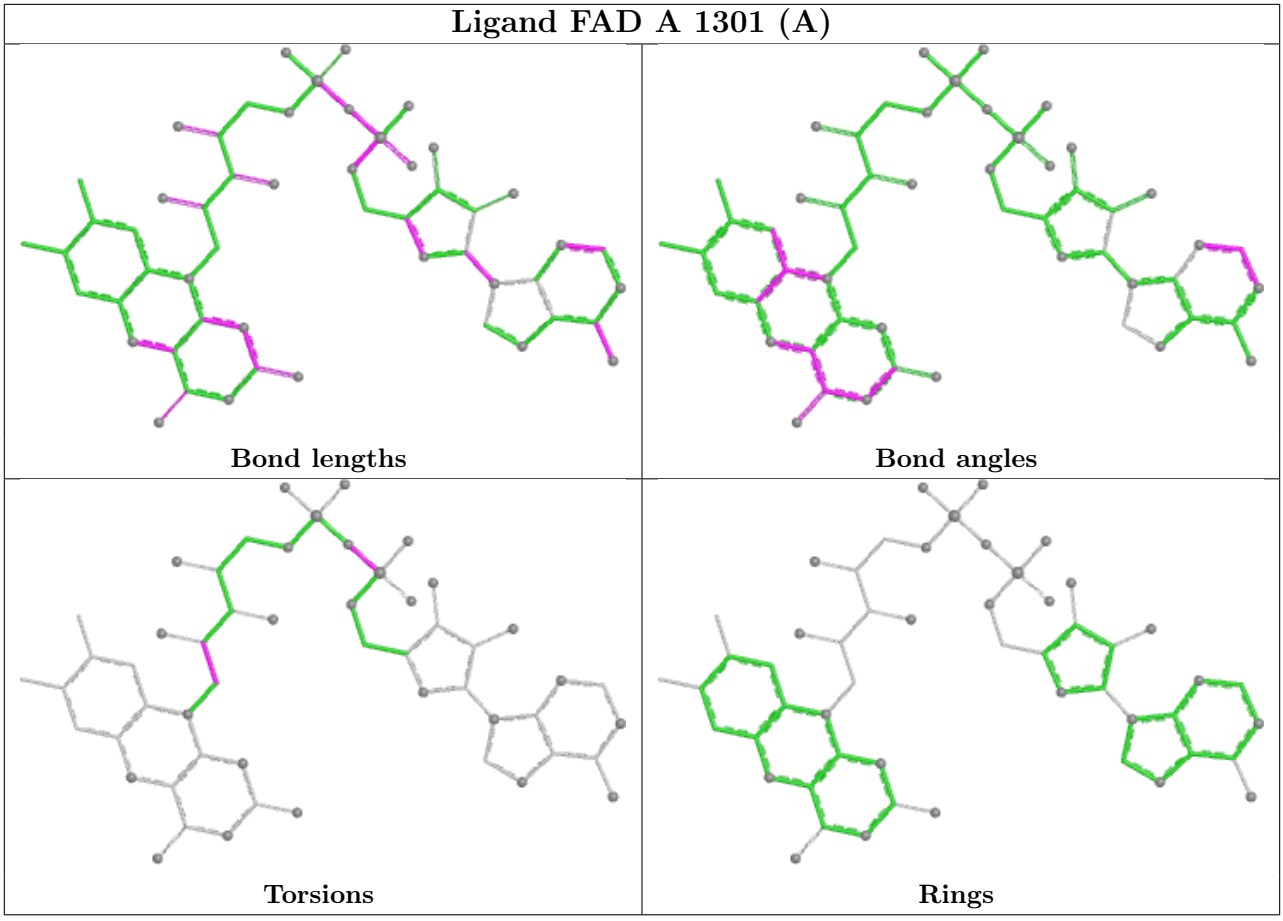
Bond angles



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, 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	1216/1235 (98%)	0.40	71 (5%)	30	30	8, 23, 40, 62	25 (2%)
1	B	1212/1235 (98%)	0.34	73 (6%)	29	28	9, 21, 42, 69	16 (1%)
All	All	2428/2470 (98%)	0.37	144 (5%)	29	29	8, 22, 41, 69	41 (1%)

All (144) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	914	LEU	7.8
1	B	1223	ALA	7.1
1	B	1229	LEU	6.4
1	A	493	ASN	6.4
1	B	1231	ALA	6.4
1	A	156	THR	6.1
1	B	486	LEU	5.8
1	B	1230	MET	5.8
1	B	1222	ALA	5.8
1	B	490	LEU	5.7
1	B	494	GLY	5.7
1	B	918	THR	5.7
1	B	485	TYR	5.7
1	B	491	LEU	5.7
1	B	495	ALA	5.4
1	B	913	GLY	5.4
1	B	1232	ILE	5.1
1	B	915	ALA	5.1
1	A	1223	ALA	5.0
1	A	1227	ALA	5.0
1	A	1232	ILE	4.9
1	A	1222	ALA	4.9
1	B	1227	ALA	4.8
1	A	490	LEU	4.7

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Mol	Chain	Res	Type	RSRZ
1	B	223	LEU	4.6
1	B	487	VAL	4.5
1	B	508	VAL	4.5
1	A	1229	LEU	4.4
1	B	912	ILE	4.4
1	A	485	TYR	4.4
1	B	500	VAL	4.3
1	A	494	GLY	4.2
1	B	1225	GLY	4.2
1	A	491	LEU	4.2
1	B	482	LEU	4.1
1	B	1228	SER	4.1
1	A	1231	ALA	4.0
1	B	484	ALA	3.9
1	A	1228	SER	3.8
1	B	156	THR	3.8
1	A	134	LEU	3.8
1	B	134	LEU	3.8
1	A	82	SER	3.7
1	A	137	SER	3.6
1	B	481	THR	3.6
1	A	492	GLU	3.6
1	B	129	ASN	3.6
1	B	14	ALA	3.5
1	A	1226	ASN	3.5
1	B	133	HIS	3.5
1	B	478	THR	3.5
1	B	224	GLY	3.5
1	A	481	THR	3.5
1	B	1226	ASN	3.5
1	A	1230	MET	3.5
1	B	1224	GLY	3.5
1	B	132	SER	3.4
1	B	492	GLU	3.4
1	A	506	PRO	3.4
1	B	1233	GLY	3.4
1	A	14	ALA	3.4
1	A	495	ALA	3.4
1	A	905	LEU	3.4
1	A	500	VAL	3.3
1	A	1225	GLY	3.2
1	A	1233	GLY	3.2

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Mol	Chain	Res	Type	RSRZ
1	A	132	SER	3.2
1	A	484	ALA	3.2
1	A	129	ASN	3.1
1	A	487	VAL	3.1
1	B	479	HIS	3.1
1	A	451	GLY	3.0
1	A	223	LEU	3.0
1	A	912	ILE	3.0
1	B	488	ARG	2.9
1	B	510	ILE	2.9
1	A	79	HIS	2.9
1	B	127	ASP	2.9
1	B	503	ILE	2.8
1	A	482	LEU	2.8
1	B	114	THR	2.8
1	A	571	ALA	2.8
1	B	483	LEU	2.8
1	B	1221	ALA	2.8
1	B	489	ARG	2.7
1	A	128	GLY	2.7
1	B	74	ALA	2.7
1	A	116	THR	2.7
1	A	133	HIS	2.7
1	B	128	GLY	2.7
1	A	503	ILE	2.6
1	B	496	ASN	2.6
1	A	526	VAL	2.6
1	B	66	SER	2.5
1	A	904	GLY	2.5
1	A	801	ALA	2.5
1	B	155	LEU	2.5
1	B	917	GLU	2.5
1	B	501	HIS	2.4
1	B	937	LEU	2.4
1	A	414	ASP	2.4
1	A	114	THR	2.4
1	B	506	PRO	2.4
1	A	916	SER	2.3
1	B	916	SER	2.3
1	A	125	ILE	2.3
1	A	486	LEU	2.3
1	A	931	LEU	2.3

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Mol	Chain	Res	Type	RSRZ
1	B	157	SER	2.3
1	A	127	ASP	2.3
1	B	919	GLY	2.3
1	A	582	THR	2.2
1	A	914	LEU	2.2
1	B	75	LEU	2.2
1	A	949	ILE	2.2
1	A	130	TRP	2.2
1	A	115	ALA	2.2
1	A	586	ALA	2.2
1	B	131	LYS	2.2
1	A	520	VAL	2.2
1	A	1224	GLY	2.2
1	A	120	LEU	2.2
1	A	155	LEU	2.2
1	B	796	ASP	2.2
1	B	115	ALA	2.2
1	A	224	GLY	2.2
1	B	84	VAL	2.2
1	A	525	PRO	2.2
1	B	130	TRP	2.1
1	A	113	ASP	2.1
1	A	1221	ALA	2.1
1	A	195	PHE	2.1
1	B	138	ARG	2.1
1	B	159	VAL	2.1
1	B	451	GLY	2.1
1	B	116	THR	2.1
1	A	111	ILE	2.1
1	B	949	ILE	2.1
1	A	909	VAL	2.1
1	A	906	GLY	2.1
1	A	771	ALA	2.0
1	B	438	ASP	2.0
1	A	937	LEU	2.0
1	B	905	LEU	2.0

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

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

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

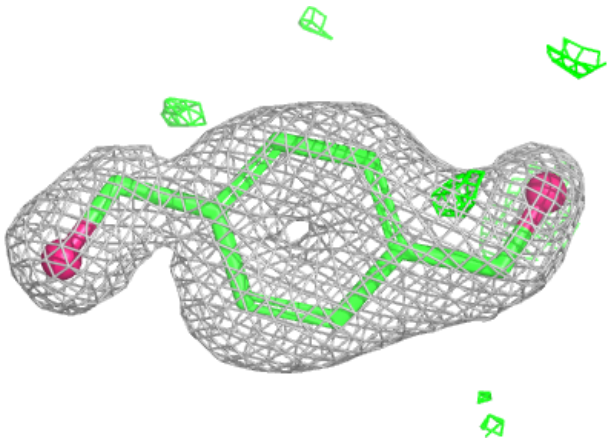
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

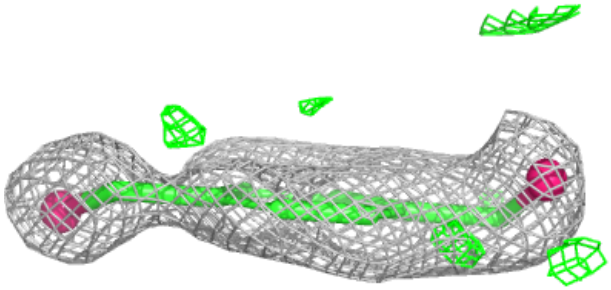
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
6	SO4	A	1309	5/5	0.78	0.15	39,41,45,57	5
4	PEG	A	1304	7/7	0.83	0.14	32,40,46,50	0
4	PEG	B	1305	7/7	0.86	0.14	32,35,36,38	7
4	PEG	A	1303	7/7	0.86	0.13	35,38,41,45	0
6	SO4	A	1307	5/5	0.89	0.12	33,35,40,49	5
8	PGE	B	1302	10/10	0.89	0.11	33,39,43,45	0
6	SO4	A	1308	5/5	0.90	0.10	48,51,52,54	5
6	SO4	A	1310	5/5	0.91	0.13	26,28,38,42	5
9	A1BDW	B	1304	10/10	0.91	0.12	20,23,27,33	10
3	FMT	A	1302	3/3	0.92	0.10	17,17,31,33	3
3	FMT	B	1303	3/3	0.93	0.12	11,11,33,34	3
2	FAD	B	1301[A]	53/53	0.96	0.07	15,19,23,26	53
2	FAD	B	1301[B]	53/53	0.96	0.07	15,18,23,25	53
2	FAD	A	1301[A]	53/53	0.96	0.07	14,20,23,24	53
5	NAD	A	1305	44/44	0.96	0.07	17,21,25,33	0
2	FAD	A	1301[B]	53/53	0.96	0.07	13,20,23,24	53
5	NAD	B	1306	44/44	0.97	0.05	14,16,19,30	0
7	MG	B	1308	1/1	0.97	0.13	23,23,23,23	0
6	SO4	A	1306	5/5	0.99	0.05	20,20,24,24	0
6	SO4	B	1307	5/5	0.99	0.05	17,18,22,22	0
7	MG	A	1311	1/1	0.99	0.07	25,25,25,25	0

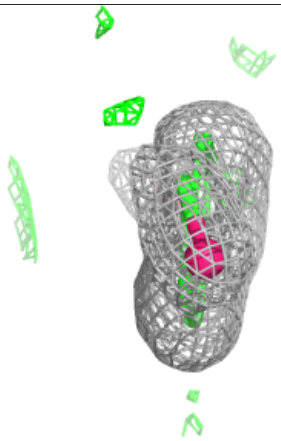
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around A1BDW B 1304:

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

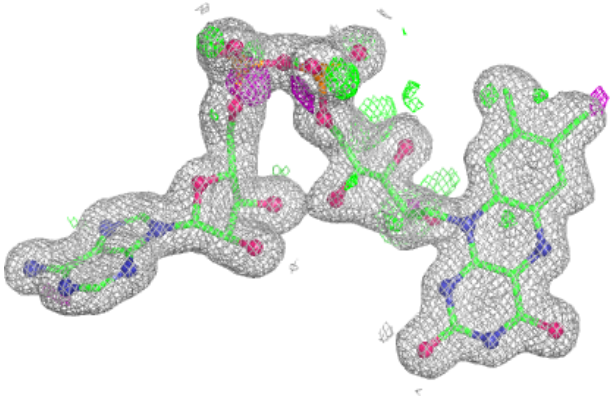


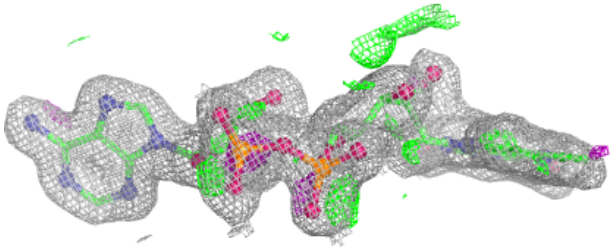


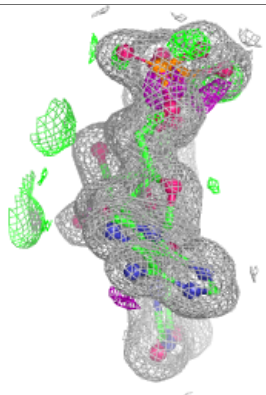


Electron density around FAD B 1301 (A):

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

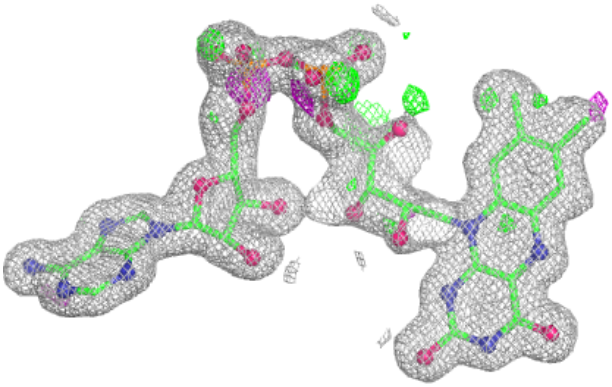


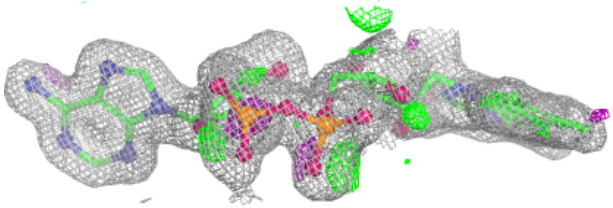


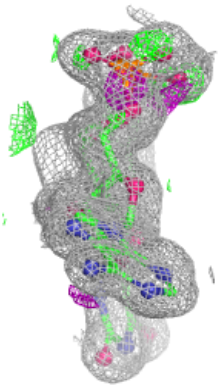


Electron density around FAD B 1301 (B):

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

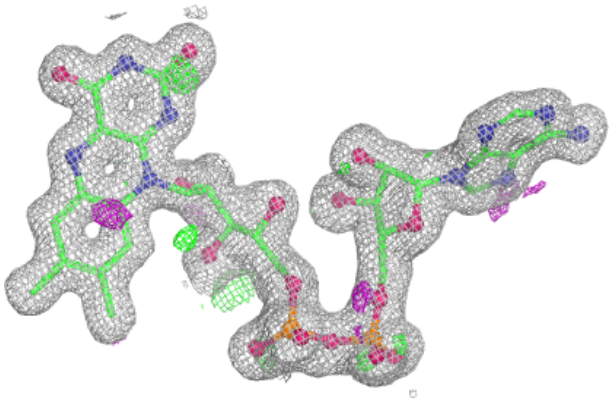


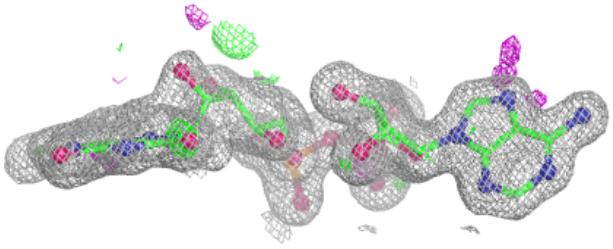


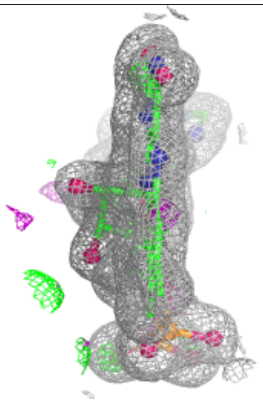


Electron density around FAD A 1301 (A):

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

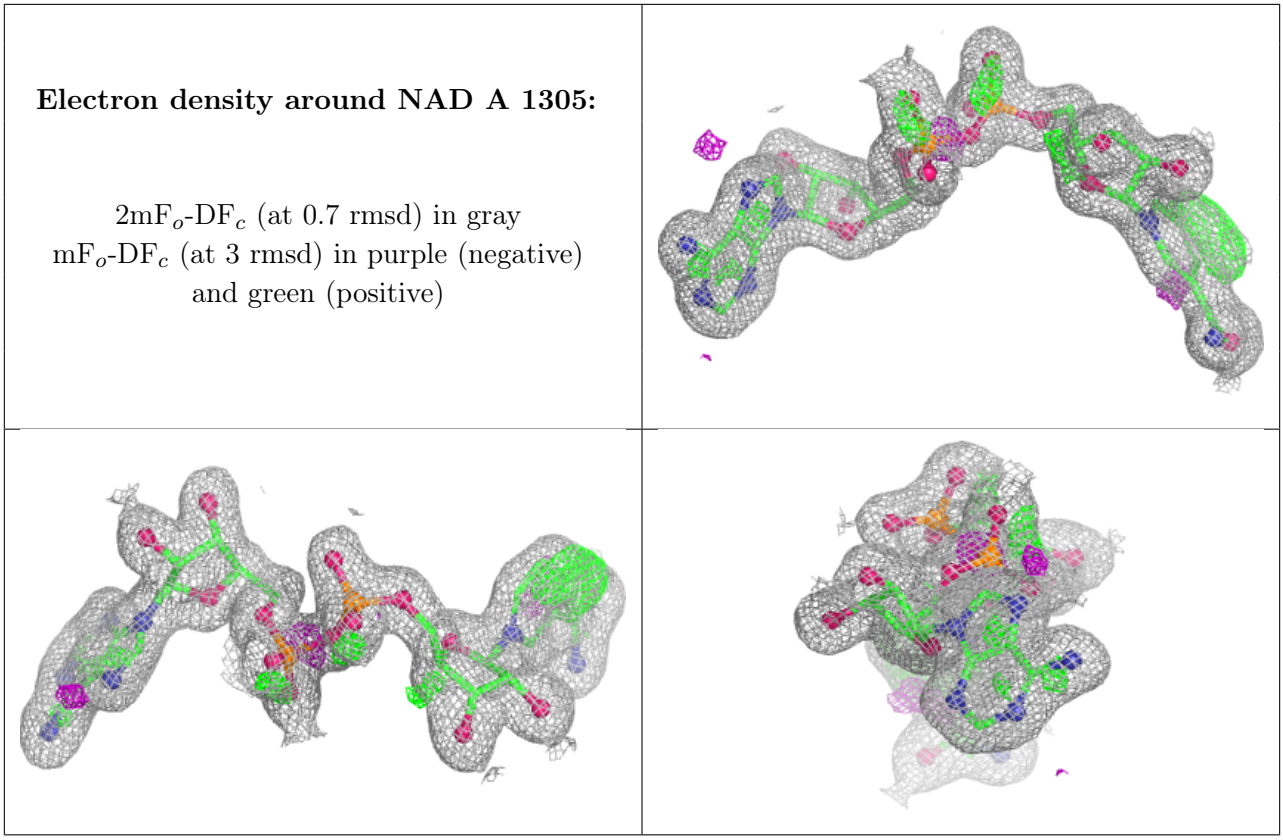






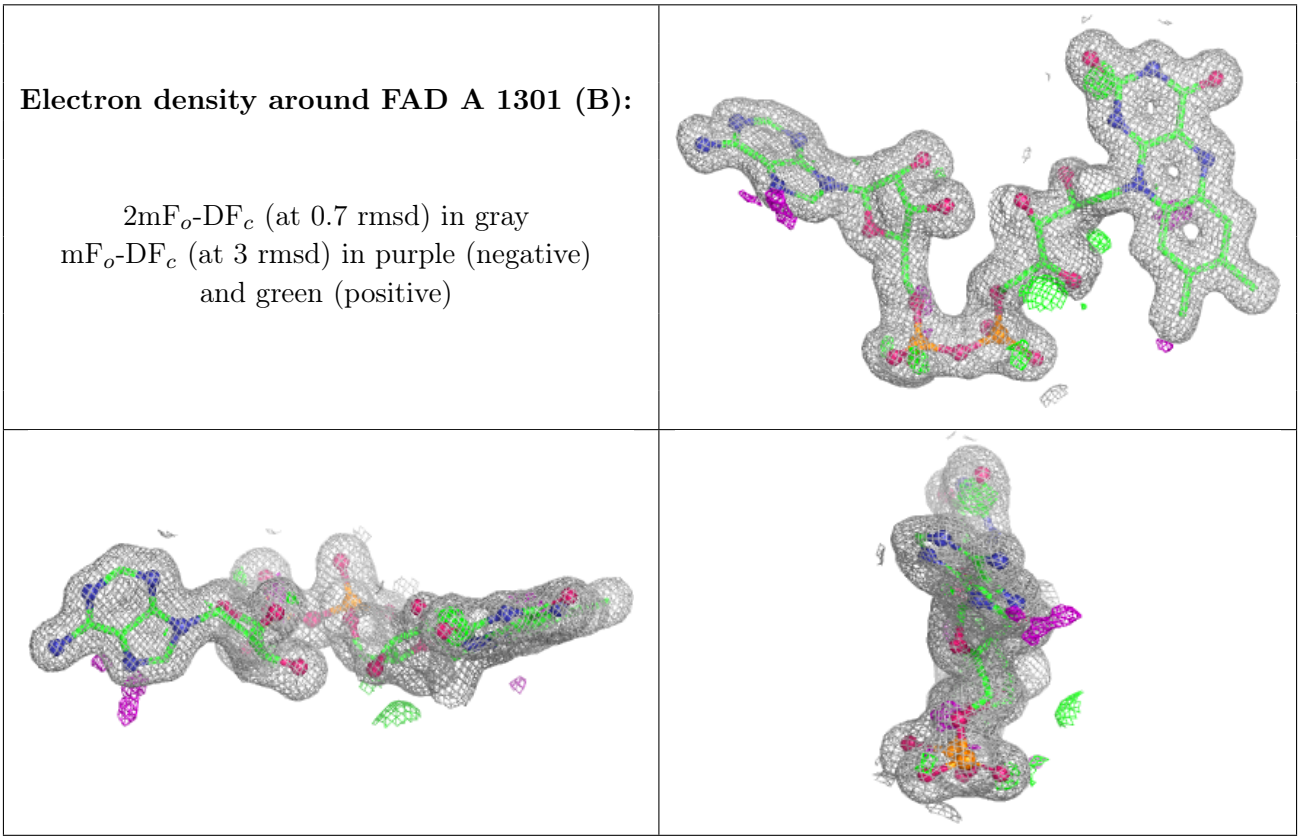
Electron density around NAD A 1305:

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



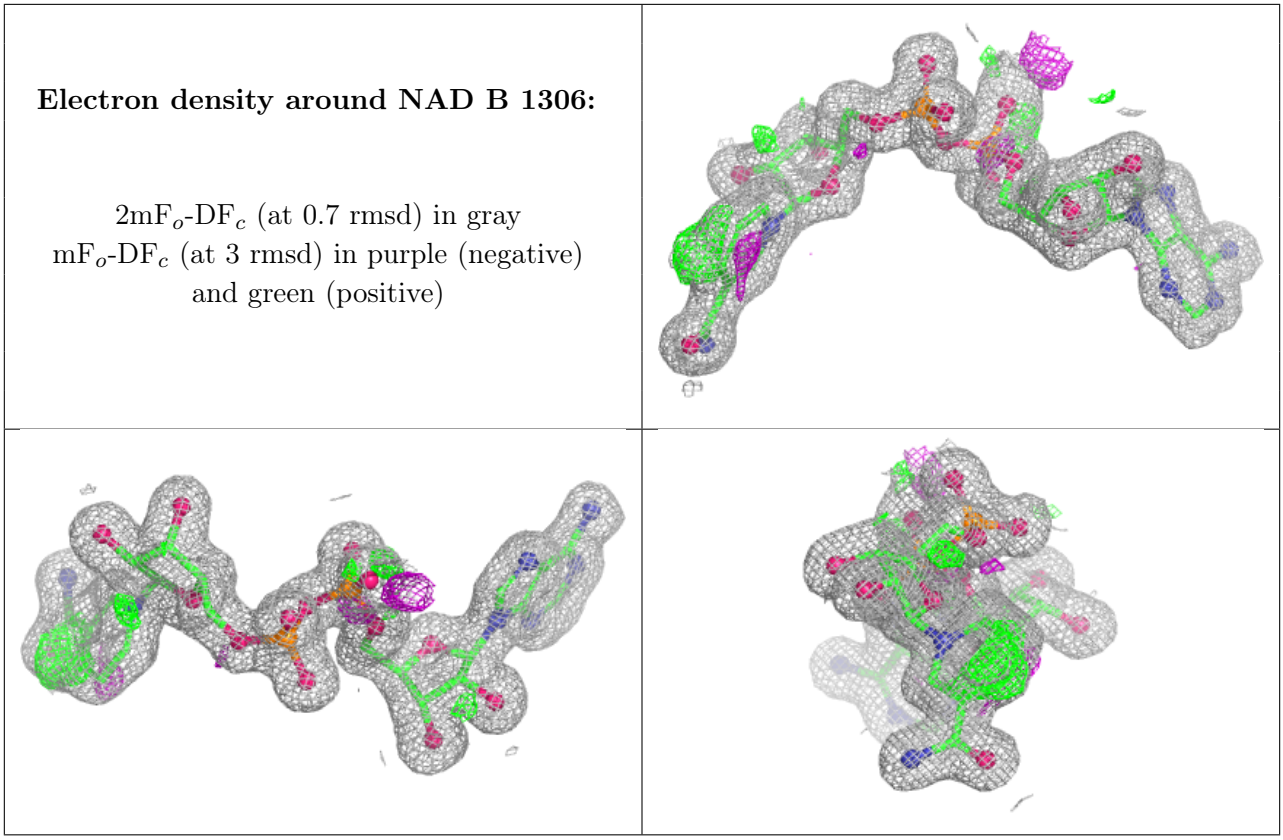
Electron density around FAD A 1301 (B):

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



Electron density around NAD B 1306:

$2mF_o$-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.