Full wwPDB X-ray Structure Validation Report (i)

Nov 19, 2024 – 04:29 PM EST

PDB ID	:	9DL7
Title	:	Structure of proline utilization A complexed with 1-(4-fluorophenyl)thiourea
Authors	:	Tanner, J.J.; Meeks, K.R.
Deposited on	:	2024-09-10
Resolution	:	1.72 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:

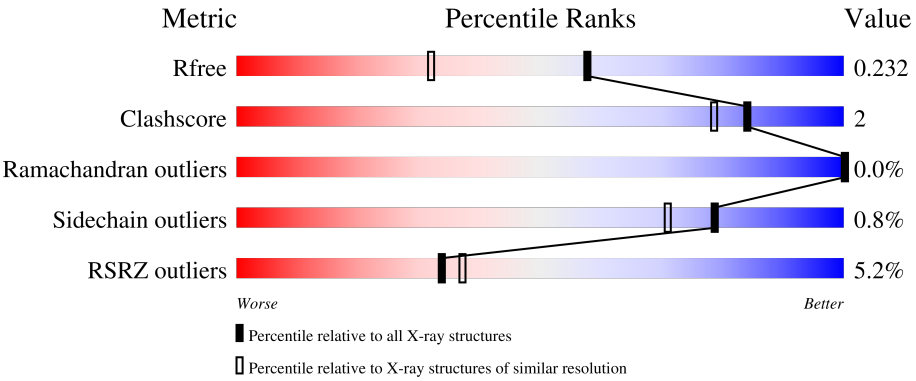
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.21
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (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 1.72 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	7106 (1.74-1.70)
Clashscore	180529	7746 (1.74-1.70)
Ramachandran outliers	177936	7654 (1.74-1.70)
Sidechain outliers	177891	7654 (1.74-1.70)
RSRZ outliers	164620	7104 (1.74-1.70)

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	4% 92% 5% ·
1	B	1235	6% 92% 5% ·

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
7	SO4	A	2016	-	-	X	-

2 Entry composition

There are 8 unique types of molecules in this entry. The entry contains 19511 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.

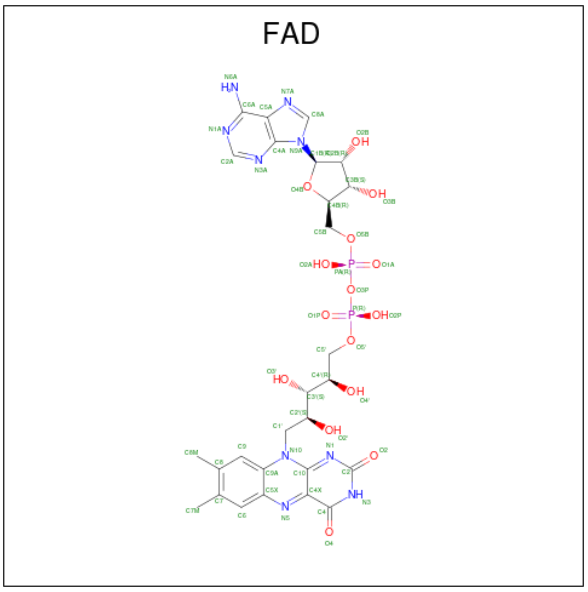
- Molecule 1 is a protein called Bifunctional protein PutA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	1199	Total	C	N	O	S	0	12	0
			8839	5575	1577	1654	33			
1	B	1202	Total	C	N	O	S	0	5	0
			8782	5527	1573	1650	32			

There are 4 discrepancies between the modelled and reference sequences:

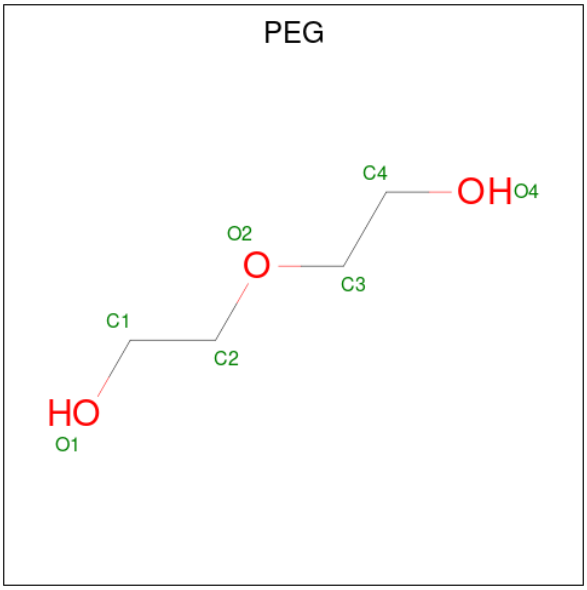
Chain	Residue	Modelled	Actual	Comment	Reference
A	-1	SER	-	expression tag	UNP F7X6I3
A	0	MET	-	expression tag	UNP F7X6I3
B	-1	SER	-	expression tag	UNP F7X6I3
B	0	MET	-	expression tag	UNP F7X6I3

- 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).



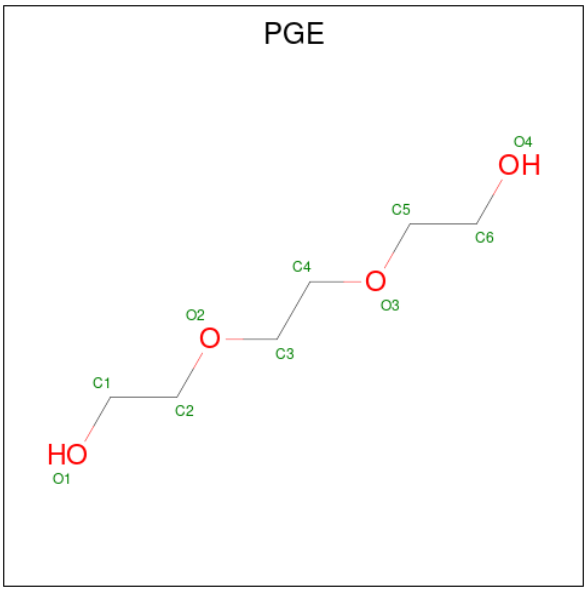
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			53	27	9	15	2		
2	B	1	Total	C	N	O	P	0	0
			53	27	9	15	2		

- Molecule 3 is DI(HYDROXYETHYL)ETHER (three-letter code: PEG) (formula: $C_4H_{10}O_3$).



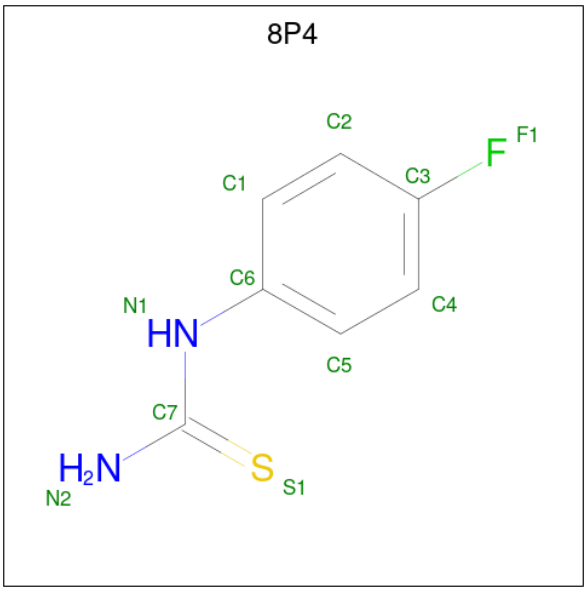
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	O		0	0
			7	4	3			
3	A	1	Total	C	O		0	0
			7	4	3			
3	A	1	Total	C	O		0	0
			7	4	3			
3	A	1	Total	C	O		0	0
			7	4	3			
3	B	1	Total	C	O		0	0
			7	4	3			
3	B	1	Total	C	O		0	0
			7	4	3			
3	B	1	Total	C	O		0	0
			7	4	3			
3	B	1	Total	C	O		0	0
			7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

- Molecule 4 is TRIETHYLENE GLYCOL (three-letter code: PGE) (formula: $C_6H_{14}O_4$).



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

- Molecule 5 is 1-(4-fluorophenyl)thiourea (three-letter code: 8P4) (formula: $C_7H_7FN_2S$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total C F N S 22 14 2 4 2	0	1

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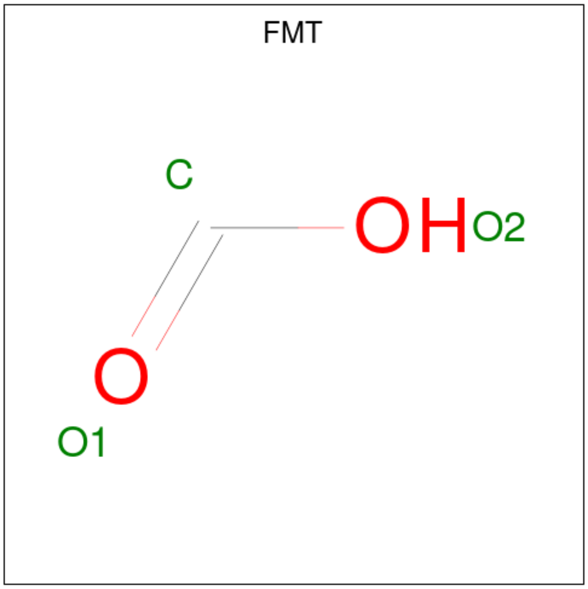
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	B	1	Total C F N S 22 14 2 4 2	0	1

- Molecule 6 is FORMIC ACID (three-letter code: FMT) (formula: CH_2O_2).



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

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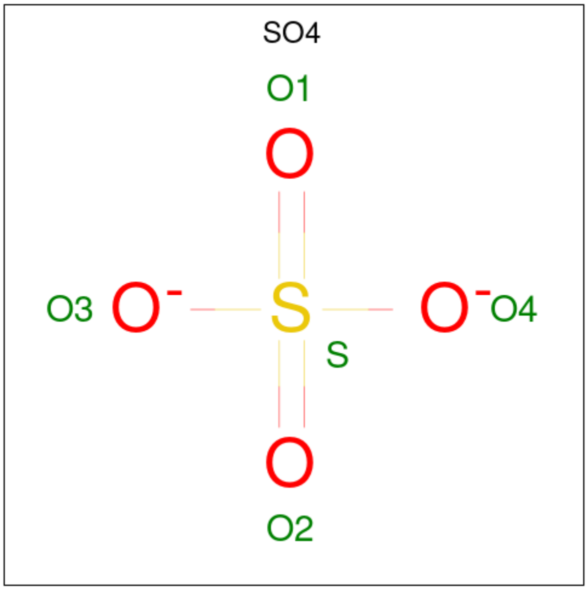
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	B	1	Total C O 3 1 2	0	0
6	B	1	Total C O 3 1 2	0	0

- Molecule 7 is SULFATE ION (three-letter code: SO4) (formula: O_4S).



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

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

- Molecule 8 is water.

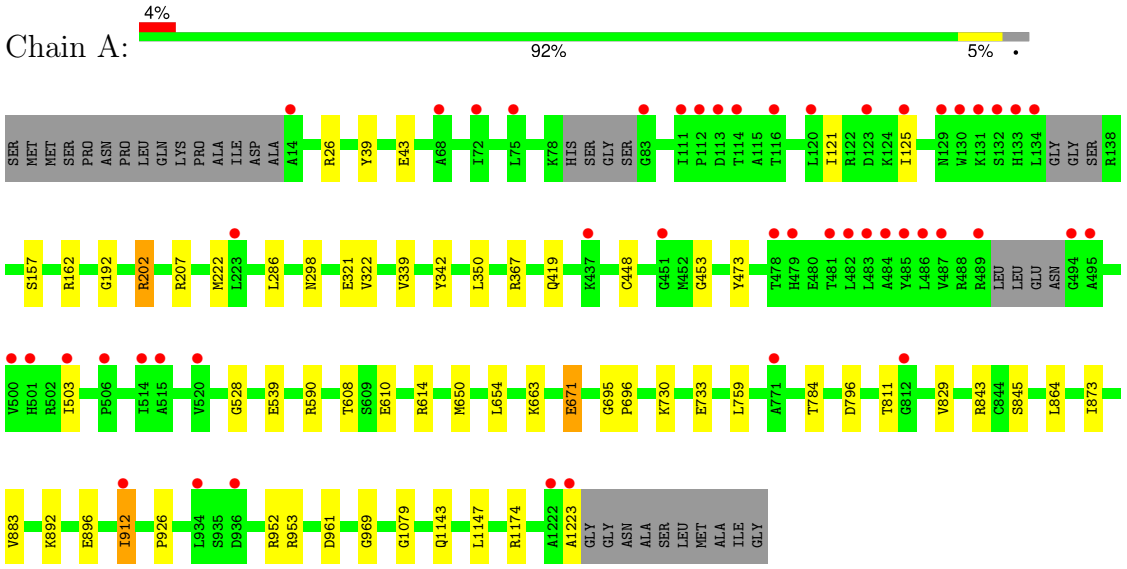
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	A	769	Total O 769 769	0	0
8	B	729	Total O 729 729	0	0

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.

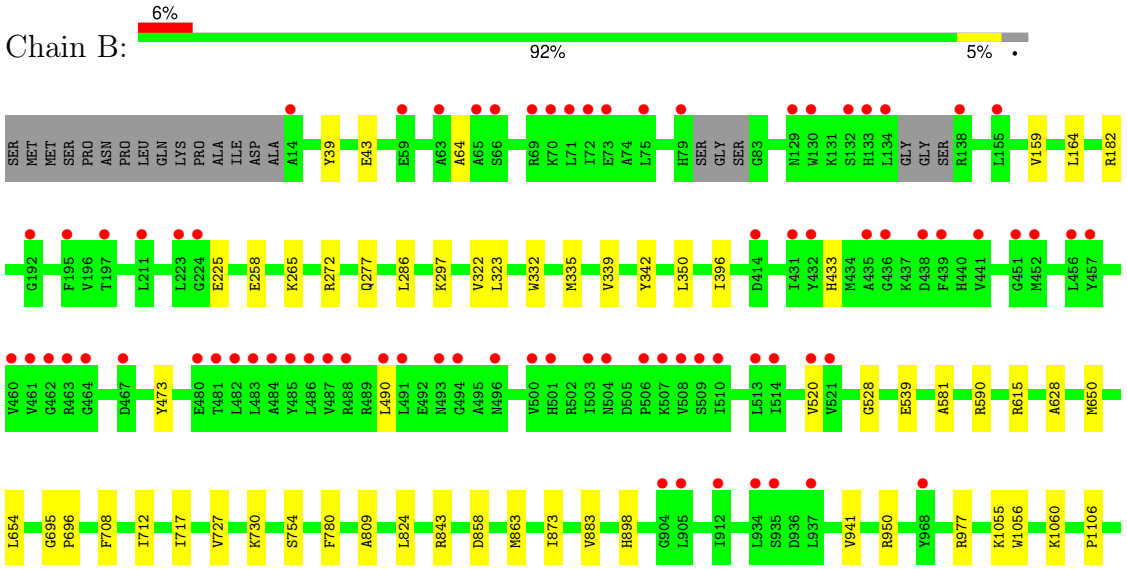
• Molecule 1: Bifunctional protein PutA

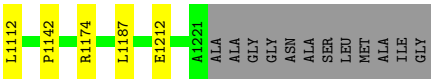
Chain A:



• Molecule 1: Bifunctional protein PutA

Chain B:




L1112
P1142
R1174
L1187
E1212
A1221
ALA
ALA
GLY
GLY
ASN
ALA
SER
LEU
MET
ALA
ILE
GLY

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	101.14Å 101.87Å 126.56Å 90.00° 106.38° 90.00°	Depositor
Resolution (Å)	46.97 – 1.72 46.97 – 1.72	Depositor EDS
% Data completeness (in resolution range)	97.8 (46.97-1.72) 99.3 (46.97-1.72)	Depositor EDS
R_{merge}	0.22	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.16 (at 1.72Å)	Xtriage
Refinement program	PHENIX 1.21rc1_5156	Depositor
R, R_{free}	0.208 , 0.240 0.201 , 0.232	Depositor DCC
R_{free} test set	5347 reflections (2.05%)	wwPDB-VP
Wilson B-factor (Å^2)	25.7	Xtriage
Anisotropy	0.229	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 43.4	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	19511	wwPDB-VP
Average B, all atoms (Å^2)	30.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.18% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: FMT, FAD, PEG, SO4, PGE, 8P4

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	0.34	0/9030	0.58	0/12306
1	B	0.34	0/8955	0.58	0/12210
All	All	0.34	0/17985	0.58	0/24516

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	8839	0	8794	38	0
1	B	8782	0	8661	35	0
2	A	53	0	31	2	0
2	B	53	0	31	3	0
3	A	28	0	40	1	0
3	B	28	0	40	0	0
4	A	10	0	14	1	0
4	B	10	0	14	0	0
5	A	22	0	0	1	0
5	B	22	0	0	1	0
6	A	21	0	7	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	B	15	0	5	1	0
7	A	80	0	0	3	0
7	B	50	0	0	1	0
8	A	769	0	0	9	1
8	B	729	0	0	7	1
All	All	19511	0	17637	77	1

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 (77) 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:473:TYR:HB2	2:A:2001:FAD:HM72	1.61	0.82
1:A:202:ARG:NH2	8:A:2102:HOH:O	2.15	0.78
1:A:539:GLU:OE1	8:A:2101:HOH:O	2.03	0.76
1:A:286:LEU:HD21	1:A:322:VAL:HG11	1.71	0.73
1:B:539:GLU:OE1	8:B:2101:HOH:O	2.07	0.71
1:B:473:TYR:HB2	2:B:2001:FAD:HM72	1.78	0.66
1:B:339:VAL:HG21	1:B:350:LEU:HD21	1.78	0.65
1:B:225:GLU:HB3	1:B:265:LYS:HD2	1.79	0.63
1:A:590:ARG:HH21	1:A:733:GLU:HG2	1.65	0.61
1:A:845:SER:OG	7:A:2016:SO4:O2	2.17	0.60
1:B:286:LEU:HD21	1:B:322:VAL:HG11	1.83	0.59
1:A:162:ARG:NH1	8:A:2114:HOH:O	2.37	0.57
1:A:961:ASP:OD2	1:B:1055:LYS:NZ	2.31	0.56
1:A:663:LYS:NZ	1:A:671:GLU:OE1	2.33	0.56
1:A:829:VAL:HG13	1:A:864[B]:LEU:HD23	1.89	0.55
1:B:182:ARG:NH1	8:B:2121:HOH:O	2.39	0.54
1:A:473:TYR:CB	2:A:2001:FAD:HM72	2.34	0.54
1:A:912:ILE:HD11	1:A:926:PRO:HD2	1.89	0.54
1:B:323:LEU:HD13	1:B:335:MET:HE3	1.88	0.54
1:B:650:MET:O	1:B:654:LEU:HG	2.08	0.53
1:A:843:ARG:HD3	7:A:2016:SO4:O2	2.09	0.52
1:A:192:GLY:O	1:A:207:ARG:NH1	2.42	0.52
1:B:1212:GLU:OE1	8:B:2102:HOH:O	2.19	0.51
1:A:298[A]:ASN:OD1	8:A:2103:HOH:O	2.19	0.51
1:B:1174:ARG:NH1	8:B:2120:HOH:O	2.39	0.51
1:A:952:ARG:HA	7:A:2030:SO4:O4	2.12	0.50
1:A:796:ASP:OD1	1:A:1174[B]:ARG:NH2	2.38	0.50
1:A:298[B]:ASN:ND2	8:A:2106:HOH:O	2.26	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:2005[A]:8P4:F1	8:B:2582:HOH:O	2.07	0.50
1:A:873:ILE:HG13	1:A:883:VAL:HB	1.95	0.49
1:B:258:GLU:O	8:B:2103:HOH:O	2.20	0.49
1:A:43:GLU:HB3	1:A:528:GLY:O	2.13	0.48
1:A:650:MET:O	1:A:654:LEU:HG	2.13	0.48
1:B:297:LYS:HG3	1:B:332:TRP:HB2	1.95	0.48
1:A:610:GLU:HG2	1:A:614:ARG:NH1	2.28	0.48
1:A:339:VAL:HG21	1:A:350:LEU:HD21	1.95	0.48
1:A:1143:GLN:O	1:A:1147:LEU:HG	2.14	0.48
1:B:615:ARG:HH22	6:B:2011:FMT:H	1.79	0.47
1:B:43:GLU:HB3	1:B:528:GLY:O	2.14	0.47
1:A:222:MET:HG2	8:A:2265:HOH:O	2.14	0.47
1:B:873:ILE:HG13	1:B:883:VAL:HB	1.95	0.47
1:B:1106:PRO:HG3	1:B:1112:LEU:HD13	1.97	0.47
1:B:1060:LYS:HB3	1:B:1060:LYS:HE3	1.67	0.47
1:B:64:ALA:HA	1:B:433:HIS:CD2	2.50	0.46
1:B:1056:TRP:CD1	1:B:1142:PRO:HD3	2.50	0.46
1:A:590:ARG:NH2	1:A:733:GLU:HG2	2.31	0.46
1:B:396:ILE:HD11	1:B:520:VAL:HB	1.97	0.46
1:B:843:ARG:HD3	7:B:2014:SO4:O3	2.16	0.46
1:A:1079:GLY:HA2	4:A:2003:PGE:H4	1.98	0.46
1:A:448:CYS:HB2	1:A:453:GLY:HA3	1.98	0.45
1:A:784:THR:HG22	1:A:811:THR:HB	1.98	0.45
1:A:367:ARG:HA	1:A:419:GLN:HB2	1.99	0.45
1:B:1060:LYS:NZ	8:B:2149:HOH:O	2.50	0.45
5:A:2005[A]:8P4:S1	8:A:2183:HOH:O	2.61	0.45
1:B:708:PHE:HB2	1:B:712:ILE:HD12	1.99	0.44
1:A:157:SER:HA	1:A:1223:ALA:HB3	1.99	0.44
1:B:824:LEU:HB2	1:B:977:ARG:HH21	1.82	0.44
1:A:892:LYS:O	1:A:896:GLU:HG3	2.18	0.43
1:A:26:ARG:HH22	1:A:322:VAL:HG23	1.82	0.43
1:A:953:ARG:HD3	8:A:2303:HOH:O	2.18	0.43
1:B:863:MET:HE2	1:B:863:MET:HB2	1.89	0.43
1:B:628:ALA:CB	1:B:696:PRO:HG2	2.48	0.43
1:B:159:VAL:HG13	1:B:164:LEU:HD12	2.00	0.42
1:B:898:HIS:CD2	1:B:941:VAL:HG21	2.54	0.42
1:B:780:PHE:O	1:B:809:ALA:HA	2.18	0.42
1:A:121:ILE:HA	1:A:125:ILE:HB	2.01	0.42
1:A:608:THR:HG21	1:A:759:LEU:HD12	2.01	0.42
1:B:717:ILE:HG12	1:B:727:VAL:HG11	2.01	0.42
3:A:2012:PEG:H11	8:A:2739:HOH:O	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:953:ARG:O	1:A:953:ARG:HD2	2.20	0.42
1:B:858:ASP:CG	1:B:950:ARG:HH22	2.24	0.41
2:B:2001:FAD:H1'1	2:B:2001:FAD:H9	1.80	0.41
1:B:272:ARG:HB3	1:B:277:GLN:HG3	2.01	0.40
1:B:581:ALA:HB2	1:B:754:SER:HA	2.03	0.40
1:A:695:GLY:HA2	1:A:696:PRO:HD3	1.96	0.40
1:B:695:GLY:HA2	1:B:696:PRO:HD3	1.91	0.40
2:B:2001:FAD:H1'1	2:B:2001:FAD:H4'	1.84	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:2104:HOH:O	8:B:2715:HOH:O[2_556]	2.14	0.06

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	1203/1235 (97%)	1179 (98%)	23 (2%)	1 (0%)	48 32
1	B	1202/1235 (97%)	1181 (98%)	21 (2%)	0	100 100
All	All	2405/2470 (97%)	2360 (98%)	44 (2%)	1 (0%)	100 100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	969	GLY

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	875/951 (92%)	867 (99%)	8 (1%)	75	67
1	B	859/951 (90%)	853 (99%)	6 (1%)	81	74
All	All	1734/1902 (91%)	1720 (99%)	14 (1%)	79	71

All (14) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	39	TYR
1	A	202	ARG
1	A	321	GLU
1	A	342	TYR
1	A	503	ILE
1	A	671	GLU
1	A	730	LYS
1	A	912	ILE
1	B	39	TYR
1	B	342	TYR
1	B	490	LEU
1	B	590	ARG
1	B	730	LYS
1	B	1187	LEU

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

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

54 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	PEG	A	2002	-	6,6,6	0.22	0	5,5,5	0.21	0
3	PEG	A	2004	-	6,6,6	0.23	0	5,5,5	0.32	0
7	SO4	A	2020	-	4,4,4	0.70	0	6,6,6	0.05	0
6	FMT	A	2008	-	2,2,2	0.58	0	1,1,1	0.23	0
7	SO4	A	2030	-	4,4,4	0.64	0	6,6,6	0.21	0
7	SO4	A	2015	-	4,4,4	0.50	0	6,6,6	0.30	0
7	SO4	A	2017	-	4,4,4	0.69	0	6,6,6	0.26	0
7	SO4	A	2023	-	4,4,4	0.61	0	6,6,6	0.10	0
2	FAD	A	2001	-	54,58,58	2.31	17 (31%)	71,89,89	1.77	18 (25%)
7	SO4	B	2015	-	4,4,4	0.71	0	6,6,6	0.08	0
7	SO4	A	2027	-	4,4,4	0.70	0	6,6,6	0.10	0
3	PEG	A	2012	-	6,6,6	0.22	0	5,5,5	0.47	0
6	FMT	B	2010	-	2,2,2	0.60	0	1,1,1	0.20	0
7	SO4	B	2022	-	4,4,4	0.67	0	6,6,6	0.18	0
3	PEG	A	2007	-	6,6,6	0.25	0	5,5,5	0.27	0
6	FMT	A	2009	-	2,2,2	0.63	0	1,1,1	0.10	0
7	SO4	A	2025	-	4,4,4	0.70	0	6,6,6	0.26	0
7	SO4	A	2024	-	4,4,4	0.62	0	6,6,6	0.23	0
6	FMT	A	2013	-	2,2,2	0.59	0	1,1,1	0.25	0
7	SO4	A	2029	-	4,4,4	0.63	0	6,6,6	0.18	0
7	SO4	B	2016	-	4,4,4	0.69	0	6,6,6	0.18	0
7	SO4	B	2021	-	4,4,4	0.68	0	6,6,6	0.20	0
4	PGE	A	2003	-	9,9,9	0.32	0	8,8,8	0.63	0
7	SO4	A	2022	-	4,4,4	0.61	0	6,6,6	0.45	0
7	SO4	A	2028	-	4,4,4	0.68	0	6,6,6	0.13	0
3	PEG	B	2004	-	6,6,6	0.26	0	5,5,5	0.29	0
3	PEG	B	2007	-	6,6,6	0.25	0	5,5,5	0.26	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
6	FMT	A	2010	-	2,2,2	0.59	0	1,1,1	0.19	0
7	SO4	A	2026	-	4,4,4	0.63	0	6,6,6	0.21	0
6	FMT	B	2011	-	2,2,2	0.62	0	1,1,1	0.17	0
7	SO4	A	2016	-	4,4,4	0.57	0	6,6,6	0.22	0
7	SO4	A	2021	-	4,4,4	0.64	0	6,6,6	0.17	0
7	SO4	B	2013	-	4,4,4	0.68	0	6,6,6	0.36	0
7	SO4	B	2017	-	4,4,4	0.56	0	6,6,6	0.24	0
7	SO4	B	2019	-	4,4,4	0.68	0	6,6,6	0.11	0
2	FAD	B	2001	-	54,58,58	2.21	15 (27%)	71,89,89	1.68	14 (19%)
7	SO4	A	2019	-	4,4,4	0.64	0	6,6,6	0.14	0
4	PGE	B	2002	-	9,9,9	0.31	0	8,8,8	0.37	0
6	FMT	A	2011	-	2,2,2	0.64	0	1,1,1	0.19	0
6	FMT	B	2006	-	2,2,2	0.61	0	1,1,1	0.08	0
6	FMT	A	2006	-	2,2,2	0.62	0	1,1,1	0.22	0
3	PEG	B	2003	-	6,6,6	0.24	0	5,5,5	0.34	0
6	FMT	B	2008	-	2,2,2	0.57	0	1,1,1	0.18	0
6	FMT	B	2012	-	2,2,2	0.63	0	1,1,1	0.18	0
7	SO4	A	2018	-	4,4,4	0.66	0	6,6,6	0.10	0
3	PEG	B	2009	-	6,6,6	0.30	0	5,5,5	0.27	0
7	SO4	B	2018	-	4,4,4	0.71	0	6,6,6	0.18	0
7	SO4	B	2020	-	4,4,4	0.62	0	6,6,6	0.25	0
6	FMT	A	2014	-	2,2,2	0.63	0	1,1,1	0.19	0
5	8P4	B	2005[A]	-	11,11,11	3.61	3 (27%)	13,14,14	2.55	5 (38%)
5	8P4	B	2005[B]	-	11,11,11	3.60	4 (36%)	13,14,14	2.70	7 (53%)
5	8P4	A	2005[A]	-	11,11,11	3.52	4 (36%)	13,14,14	2.84	5 (38%)
5	8P4	A	2005[B]	-	11,11,11	3.70	4 (36%)	13,14,14	2.49	6 (46%)
7	SO4	B	2014	-	4,4,4	0.66	0	6,6,6	0.21	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
3	PEG	A	2002	-	-	0/4/4/4	-
3	PEG	A	2004	-	-	2/4/4/4	-
3	PEG	B	2004	-	-	1/4/4/4	-
3	PEG	B	2007	-	-	1/4/4/4	-
3	PEG	A	2012	-	-	1/4/4/4	-
3	PEG	B	2003	-	-	3/4/4/4	-
2	FAD	A	2001	-	-	7/30/50/50	0/6/6/6

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	PEG	A	2007	-	-	3/4/4/4	-
2	FAD	B	2001	-	-	4/30/50/50	0/6/6/6
3	PEG	B	2009	-	-	2/4/4/4	-
5	8P4	A	2005[B]	-	-	0/4/4/4	0/1/1/1
4	PGE	B	2002	-	-	1/7/7/7	-
5	8P4	B	2005[A]	-	-	0/4/4/4	0/1/1/1
5	8P4	B	2005[B]	-	-	0/4/4/4	0/1/1/1
5	8P4	A	2005[A]	-	-	0/4/4/4	0/1/1/1
4	PGE	A	2003	-	-	2/7/7/7	-

All (47) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	2001	FAD	PA-O3P	-8.61	1.50	1.59
5	B	2005[A]	8P4	C7-N2	7.69	1.46	1.32
2	B	2001	FAD	PA-O3P	-7.56	1.51	1.59
5	B	2005[B]	8P4	C7-N2	7.47	1.46	1.32
5	A	2005[B]	8P4	C7-N2	7.30	1.45	1.32
5	A	2005[B]	8P4	C7-N1	7.28	1.47	1.34
2	A	2001	FAD	O4-C4	7.25	1.37	1.23
5	A	2005[A]	8P4	C7-N2	7.21	1.45	1.32
2	B	2001	FAD	O4-C4	6.94	1.36	1.23
5	A	2005[A]	8P4	C7-N1	6.77	1.46	1.34
5	B	2005[B]	8P4	C7-N1	6.63	1.46	1.34
5	B	2005[A]	8P4	C7-S1	-6.37	1.60	1.69
5	B	2005[A]	8P4	C7-N1	6.18	1.45	1.34
5	B	2005[B]	8P4	C7-S1	-6.05	1.60	1.69
5	A	2005[B]	8P4	C7-S1	-5.93	1.60	1.69
5	A	2005[A]	8P4	C7-S1	-5.58	1.61	1.69
2	B	2001	FAD	O2-C2	5.39	1.35	1.24
2	A	2001	FAD	O2-C2	5.02	1.34	1.24
2	B	2001	FAD	C4X-N5	4.41	1.40	1.30
2	A	2001	FAD	C4X-N5	4.17	1.39	1.30
2	A	2001	FAD	P-O3P	3.41	1.63	1.59
2	B	2001	FAD	C2-N1	3.17	1.43	1.36
2	B	2001	FAD	C10-N1	3.15	1.39	1.33
2	A	2001	FAD	C6A-N6A	3.11	1.45	1.34
2	A	2001	FAD	C2-N1	3.04	1.43	1.36
2	B	2001	FAD	C2A-N3A	2.85	1.36	1.32
2	A	2001	FAD	PA-O5B	-2.83	1.48	1.59
2	A	2001	FAD	O2'-C2'	-2.80	1.37	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	A	2005[B]	8P4	C6-N1	2.79	1.47	1.41
2	B	2001	FAD	C6A-N6A	2.78	1.44	1.34
2	A	2001	FAD	C2A-N3A	2.70	1.36	1.32
2	B	2001	FAD	P-O3P	2.57	1.62	1.59
2	B	2001	FAD	O2'-C2'	-2.55	1.38	1.43
2	B	2001	FAD	PA-O5B	-2.51	1.49	1.59
2	A	2001	FAD	C1B-N9A	-2.46	1.43	1.49
2	A	2001	FAD	PA-O2A	-2.37	1.44	1.55
2	A	2001	FAD	O4'-C4'	-2.36	1.38	1.43
2	B	2001	FAD	O4'-C4'	-2.28	1.38	1.43
2	B	2001	FAD	PA-O2A	-2.23	1.45	1.55
5	A	2005[A]	8P4	C6-N1	2.21	1.46	1.41
2	B	2001	FAD	C1B-N9A	-2.12	1.44	1.49
2	B	2001	FAD	P-O1P	2.11	1.58	1.50
5	B	2005[B]	8P4	C6-N1	2.09	1.45	1.41
2	A	2001	FAD	O4B-C4B	-2.08	1.40	1.45
2	A	2001	FAD	C10-N1	2.07	1.37	1.33
2	A	2001	FAD	P-O1P	2.06	1.58	1.50
2	A	2001	FAD	O3'-C3'	-2.03	1.37	1.43

All (55) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	2001	FAD	N3A-C2A-N1A	-6.99	119.18	128.67
2	B	2001	FAD	N3A-C2A-N1A	-6.81	119.43	128.67
5	A	2005[A]	8P4	C1-C6-N1	-5.17	103.04	120.41
5	B	2005[B]	8P4	C1-C6-N1	-5.10	103.28	120.41
5	A	2005[A]	8P4	C5-C6-N1	5.04	137.33	120.41
5	B	2005[A]	8P4	C1-C6-N1	-5.03	103.53	120.41
5	A	2005[B]	8P4	S1-C7-N2	-4.99	116.47	123.14
5	B	2005[B]	8P4	C5-C6-N1	4.94	137.01	120.41
5	B	2005[A]	8P4	C5-C6-N1	4.61	135.88	120.41
2	B	2001	FAD	O2P-P-O3P	-4.49	95.14	107.27
2	A	2001	FAD	O2P-P-O3P	-4.42	95.33	107.27
5	B	2005[B]	8P4	F1-C3-C4	4.15	125.20	118.55
5	A	2005[A]	8P4	F1-C3-C4	4.11	125.13	118.55
5	A	2005[A]	8P4	S1-C7-N2	-3.82	118.03	123.14
5	B	2005[A]	8P4	F1-C3-C4	3.78	124.61	118.55
5	A	2005[B]	8P4	F1-C3-C4	3.70	124.47	118.55
2	A	2001	FAD	C4-C4X-N5	3.49	123.03	118.21
2	A	2001	FAD	C4-N3-C2	-3.39	119.62	125.64
2	B	2001	FAD	C4X-C4-N3	3.09	121.13	113.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	2001	FAD	C4-N3-C2	-3.07	120.19	125.64
5	A	2005[B]	8P4	C5-C6-N1	3.06	130.70	120.41
5	A	2005[B]	8P4	S1-C7-N1	3.06	127.43	120.81
2	B	2001	FAD	O3P-P-O1P	3.03	119.83	110.70
2	A	2001	FAD	C4X-C4-N3	2.95	120.76	113.25
2	A	2001	FAD	O2A-PA-O3P	-2.94	99.34	107.27
2	A	2001	FAD	C4B-O4B-C1B	-2.92	107.25	109.92
2	B	2001	FAD	O4-C4-C4X	-2.88	118.93	126.53
5	A	2005[B]	8P4	C1-C6-N1	-2.84	110.88	120.41
2	A	2001	FAD	O3P-P-O1P	2.81	119.14	110.70
2	B	2001	FAD	C5X-C9A-N10	2.76	120.47	117.97
2	A	2001	FAD	C4X-C10-N10	2.67	120.30	116.48
2	B	2001	FAD	C4A-C5A-N7A	-2.63	106.56	109.34
2	B	2001	FAD	O2A-PA-O3P	-2.60	100.23	107.27
2	A	2001	FAD	C1B-N9A-C4A	-2.58	122.11	126.64
2	B	2001	FAD	C4-C4X-N5	2.54	121.71	118.21
5	A	2005[A]	8P4	C2-C3-C4	-2.52	119.49	122.80
5	B	2005[B]	8P4	C2-C3-C4	-2.45	119.59	122.80
5	B	2005[B]	8P4	S1-C7-N2	-2.42	119.90	123.14
2	A	2001	FAD	C10-C4X-N5	-2.39	119.93	124.81
5	A	2005[B]	8P4	C2-C3-C4	-2.37	119.69	122.80
5	B	2005[A]	8P4	F1-C3-C2	-2.36	114.77	118.55
2	B	2001	FAD	O5'-P-O1P	2.35	118.23	108.94
2	A	2001	FAD	O5'-P-O1P	2.29	118.03	108.94
2	B	2001	FAD	O2A-PA-O5B	-2.26	97.34	107.57
2	A	2001	FAD	O2-C2-N1	-2.23	118.10	121.80
5	B	2005[B]	8P4	C1-C2-C3	2.20	120.64	118.38
2	A	2001	FAD	O4-C4-C4X	-2.18	120.78	126.53
2	A	2001	FAD	O2A-PA-O5B	-2.15	97.80	107.57
2	A	2001	FAD	C2'-C1'-N10	2.12	120.20	110.20
2	B	2001	FAD	O2P-P-O5'	-2.09	98.09	107.57
2	A	2001	FAD	O5B-PA-O1A	2.09	117.22	108.94
5	B	2005[B]	8P4	F1-C3-C2	-2.09	115.21	118.55
2	A	2001	FAD	O2P-P-O5'	-2.07	98.16	107.57
2	B	2001	FAD	O5B-PA-O1A	2.07	117.14	108.94
5	B	2005[A]	8P4	N2-C7-N1	2.06	121.42	117.64

There are no chirality outliers.

All (27) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	2001	FAD	P-O3P-PA-O5B

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Mol	Chain	Res	Type	Atoms
2	A	2001	FAD	N10-C1'-C2'-O2'
2	A	2001	FAD	N10-C1'-C2'-C3'
2	A	2001	FAD	C5'-O5'-P-O2P
2	B	2001	FAD	N10-C1'-C2'-O2'
2	B	2001	FAD	N10-C1'-C2'-C3'
3	B	2003	PEG	O1-C1-C2-O2
3	A	2012	PEG	O1-C1-C2-O2
3	A	2007	PEG	O2-C3-C4-O4
3	A	2007	PEG	O1-C1-C2-O2
2	A	2001	FAD	C3B-C4B-C5B-O5B
2	B	2001	FAD	P-O3P-PA-O5B
3	A	2007	PEG	C1-C2-O2-C3
2	B	2001	FAD	C3B-C4B-C5B-O5B
4	B	2002	PGE	C1-C2-O2-C3
3	B	2004	PEG	O1-C1-C2-O2
3	B	2007	PEG	C1-C2-O2-C3
3	A	2004	PEG	C1-C2-O2-C3
3	B	2003	PEG	C1-C2-O2-C3
3	B	2003	PEG	C4-C3-O2-C2
4	A	2003	PGE	C1-C2-O2-C3
3	A	2004	PEG	C4-C3-O2-C2
2	A	2001	FAD	C5B-O5B-PA-O3P
2	A	2001	FAD	C5'-O5'-P-O1P
4	A	2003	PGE	C6-C5-O3-C4
3	B	2009	PEG	O2-C3-C4-O4
3	B	2009	PEG	C1-C2-O2-C3

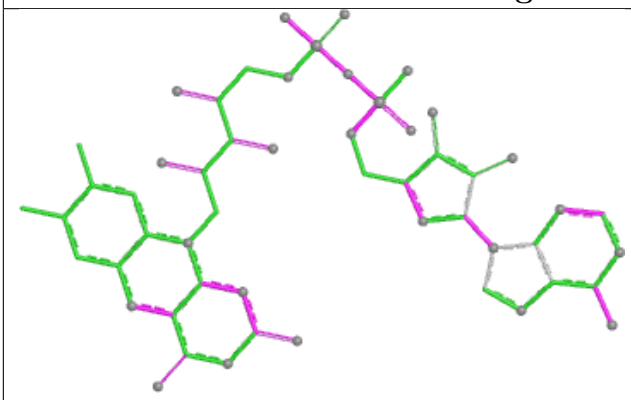
There are no ring outliers.

10 monomers are involved in 14 short contacts:

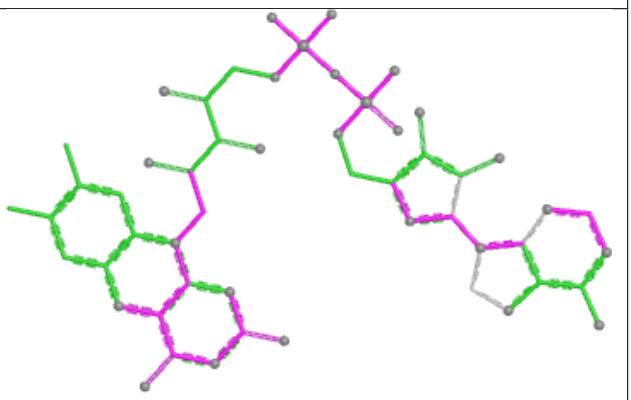
Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	A	2030	SO4	1	0
2	A	2001	FAD	2	0
3	A	2012	PEG	1	0
4	A	2003	PGE	1	0
6	B	2011	FMT	1	0
7	A	2016	SO4	2	0
2	B	2001	FAD	3	0
5	B	2005[A]	8P4	1	0
5	A	2005[A]	8P4	1	0
7	B	2014	SO4	1	0

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

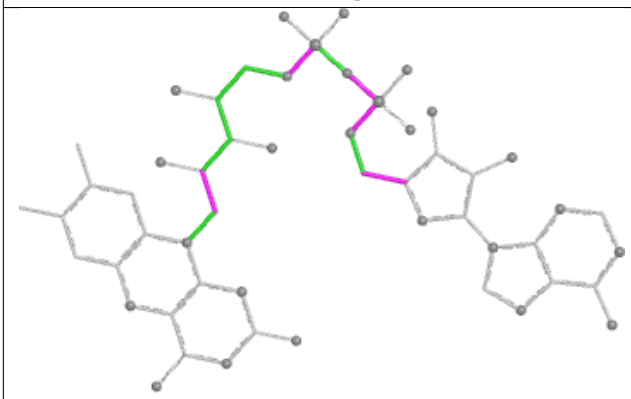
Ligand FAD A 2001



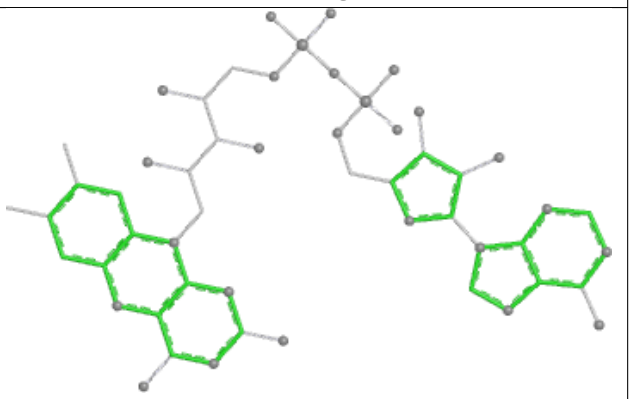
Bond lengths



Bond angles

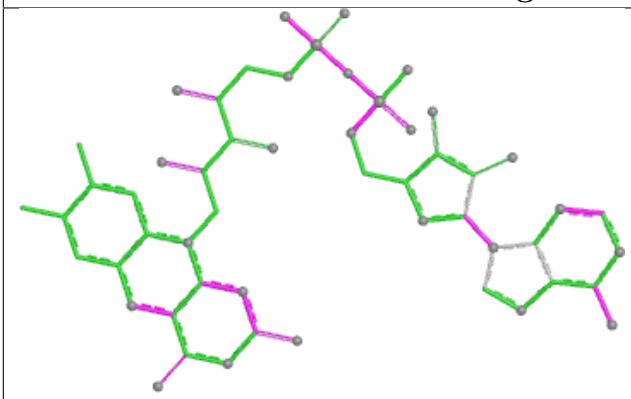


Torsions

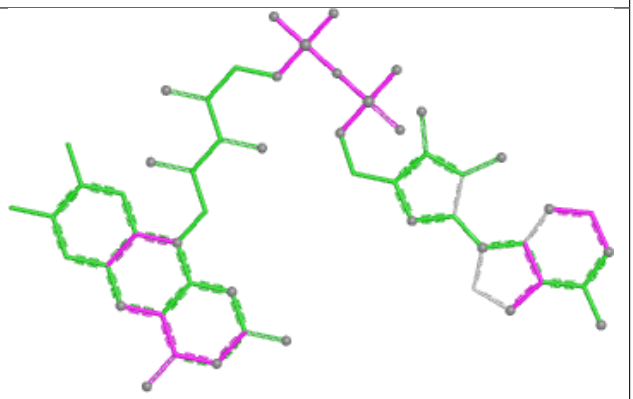


Rings

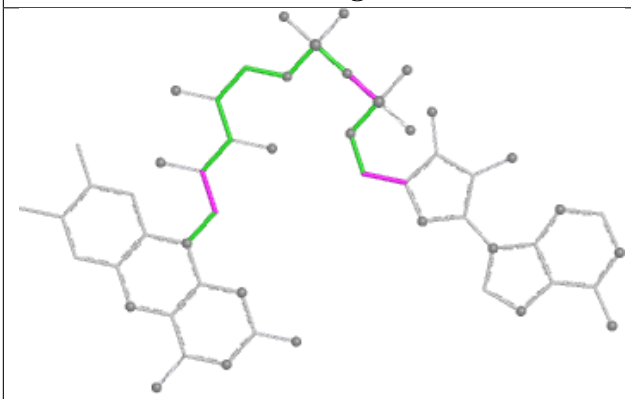
Ligand FAD B 2001



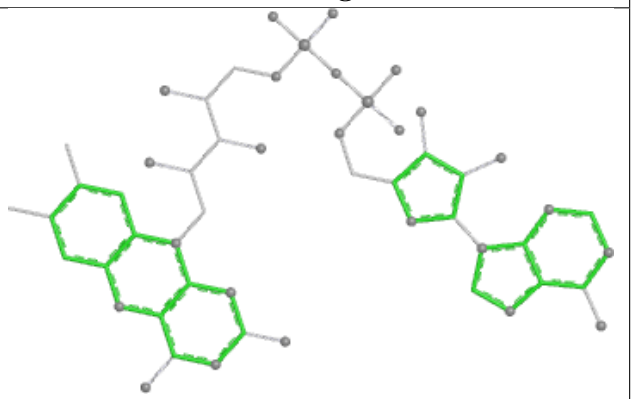
Bond lengths



Bond angles

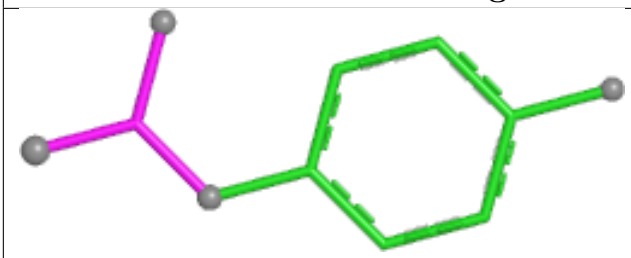


Torsions

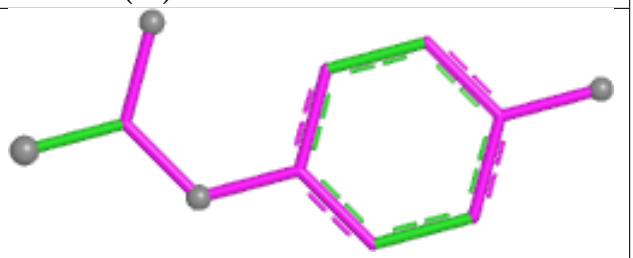


Rings

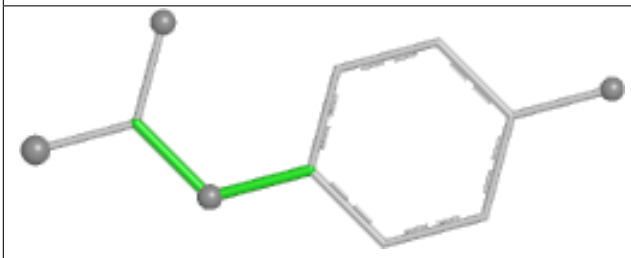
Ligand 8P4 B 2005 (A)



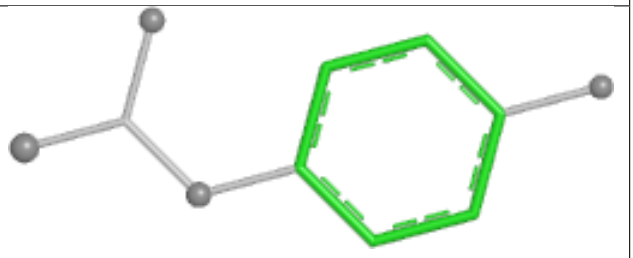
Bond lengths



Bond angles

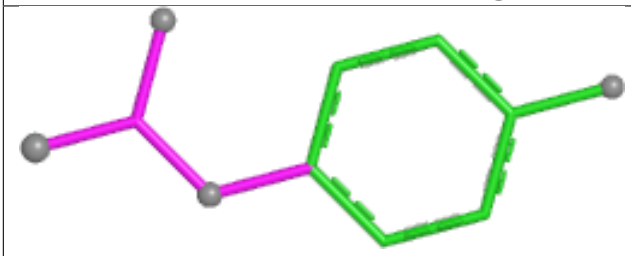


Torsions

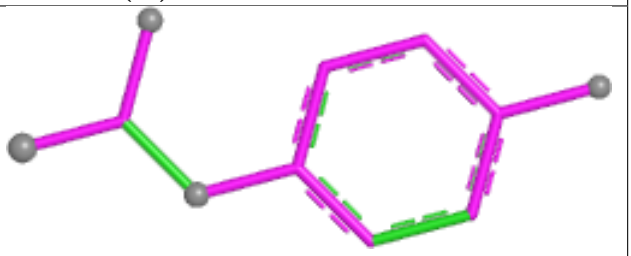


Rings

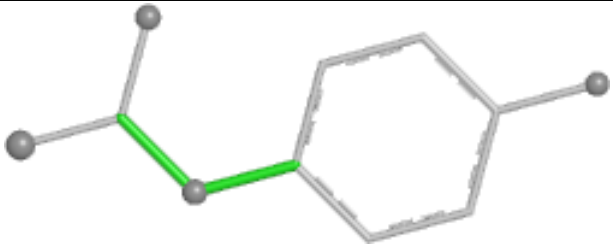
Ligand 8P4 B 2005 (B)



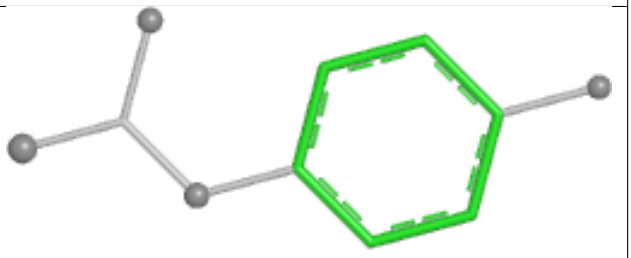
Bond lengths



Bond angles

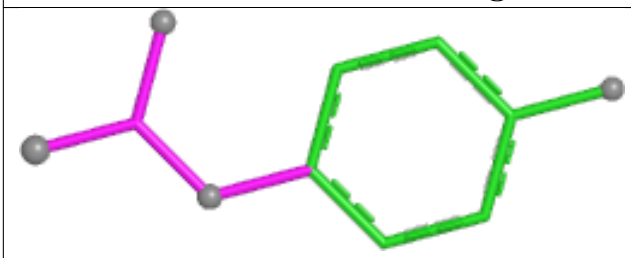


Torsions

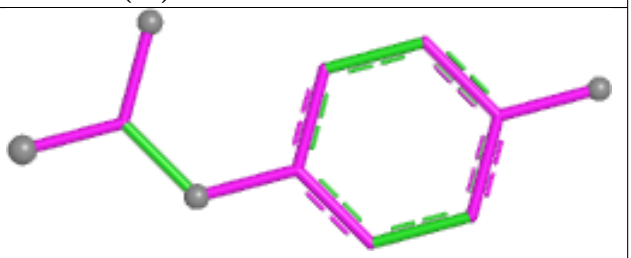


Rings

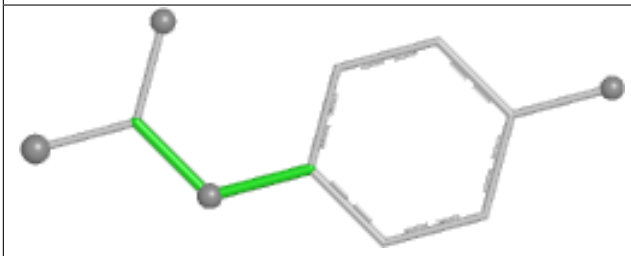
Ligand 8P4 A 2005 (A)



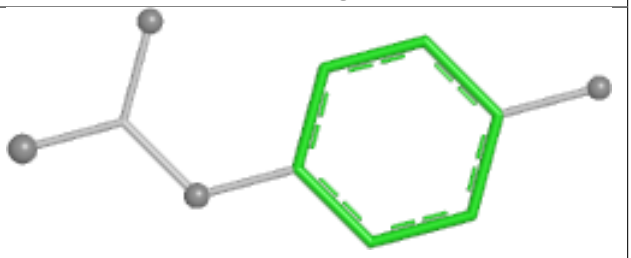
Bond lengths



Bond angles

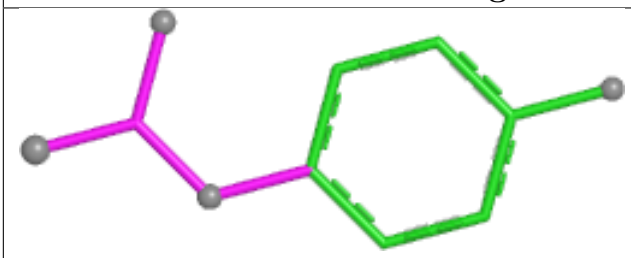


Torsions

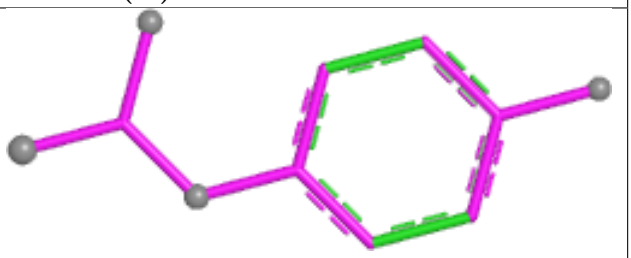


Rings

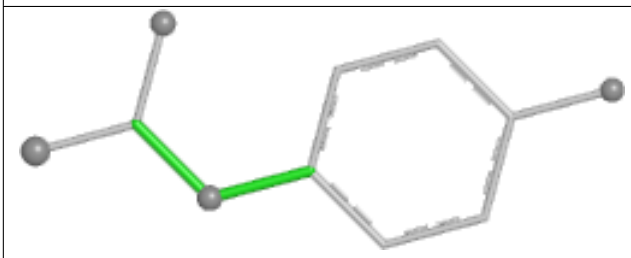
Ligand 8P4 A 2005 (B)



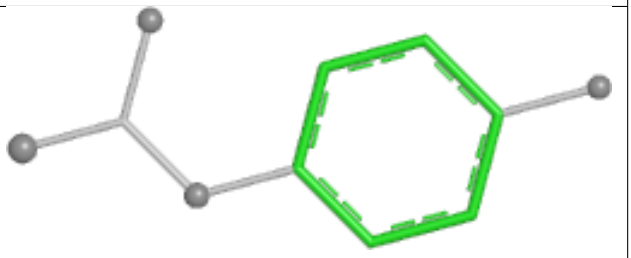
Bond lengths



Bond angles



Torsions



Rings

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, 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	1199/1235 (97%)	0.34	48 (4%)	43	47	11, 27, 49, 75	12 (1%)
1	B	1202/1235 (97%)	0.50	77 (6%)	27	28	13, 29, 54, 73	5 (0%)
All	All	2401/2470 (97%)	0.42	125 (5%)	34	37	11, 28, 52, 75	17 (0%)

All (125) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	484	ALA	6.1
1	A	487	VAL	4.8
1	B	72	ILE	4.7
1	A	483	LEU	4.6
1	B	503	ILE	4.6
1	A	486	LEU	4.4
1	A	1222	ALA	4.3
1	B	482	LEU	4.3
1	A	129	ASN	4.2
1	B	223	LEU	4.1
1	A	14	ALA	4.0
1	A	482	LEU	4.0
1	B	500	VAL	4.0
1	B	79	HIS	4.0
1	B	487	VAL	3.9
1	B	514	ILE	3.9
1	B	134	LEU	3.9
1	B	70	LYS	3.8
1	A	485	TYR	3.8
1	B	75	LEU	3.8
1	B	464	GLY	3.8
1	B	486	LEU	3.8
1	B	490	LEU	3.7
1	B	467	ASP	3.7

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Mol	Chain	Res	Type	RSRZ
1	A	495	ALA	3.7
1	B	129	ASN	3.6
1	A	494	GLY	3.6
1	A	481	THR	3.6
1	A	500	VAL	3.6
1	B	481	THR	3.6
1	B	439	PHE	3.5
1	B	66	SER	3.5
1	A	134	LEU	3.5
1	A	479	HIS	3.4
1	B	436	GLY	3.4
1	B	510	ILE	3.3
1	B	483	LEU	3.3
1	B	513	LEU	3.3
1	B	905	LEU	3.3
1	B	438	ASP	3.3
1	B	934	LEU	3.3
1	B	435	ALA	3.3
1	A	112	PRO	3.3
1	B	494	GLY	3.2
1	A	132	SER	3.2
1	B	935	SER	3.2
1	A	1223	ALA	3.0
1	B	488	ARG	3.0
1	B	155	LEU	3.0
1	B	432	TYR	3.0
1	B	507	LYS	3.0
1	A	503	ILE	2.9
1	A	133	HIS	2.9
1	B	460	VAL	2.9
1	B	14	ALA	2.9
1	A	75	LEU	2.8
1	B	937	LEU	2.8
1	B	493	ASN	2.8
1	B	132	SER	2.8
1	A	72	ILE	2.8
1	B	485	TYR	2.7
1	B	441	VAL	2.7
1	A	123	ASP	2.7
1	B	71	LEU	2.6
1	B	452	MET	2.6
1	B	461	VAL	2.6

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Mol	Chain	Res	Type	RSRZ
1	A	478	THR	2.6
1	B	456	LEU	2.6
1	A	111	ILE	2.6
1	B	462	GLY	2.6
1	B	73	GLU	2.5
1	B	133	HIS	2.5
1	A	83	GLY	2.5
1	B	484	ALA	2.5
1	B	59	GLU	2.5
1	B	508	VAL	2.5
1	A	771	ALA	2.5
1	B	195	PHE	2.5
1	B	63	ALA	2.5
1	A	514	ILE	2.4
1	A	489	ARG	2.4
1	B	521	VAL	2.4
1	A	125	ILE	2.4
1	A	131	LYS	2.4
1	A	520	VAL	2.4
1	B	463	ARG	2.4
1	B	491	LEU	2.4
1	B	451	GLY	2.4
1	B	414	ASP	2.4
1	B	130	TRP	2.4
1	B	480	GLU	2.4
1	A	113	ASP	2.3
1	A	506	PRO	2.3
1	B	904	GLY	2.3
1	A	223	LEU	2.3
1	A	68	ALA	2.3
1	A	114	THR	2.2
1	A	116	THR	2.2
1	A	936	ASP	2.2
1	A	130	TRP	2.2
1	B	192	GLY	2.2
1	B	509	SER	2.2
1	B	968	TYR	2.2
1	A	912	ILE	2.2
1	B	504	ASN	2.2
1	B	65	ALA	2.1
1	B	69	ARG	2.1
1	B	138	ARG	2.1

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Mol	Chain	Res	Type	RSRZ
1	B	912	ILE	2.1
1	A	501	HIS	2.1
1	B	506	PRO	2.1
1	A	934	LEU	2.1
1	B	496	ASN	2.1
1	B	431	ILE	2.1
1	A	437	LYS	2.1
1	A	451	GLY	2.1
1	A	812	GLY	2.1
1	B	224	GLY	2.1
1	A	120	LEU	2.1
1	B	520	VAL	2.1
1	B	501	HIS	2.0
1	B	211	LEU	2.0
1	B	457	TYR	2.0
1	A	515	ALA	2.0
1	B	197	THR	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
3	PEG	B	2007	7/7	0.66	0.19	44,45,53,57	0
3	PEG	A	2007	7/7	0.74	0.17	36,42,48,50	0
6	FMT	A	2011	3/3	0.74	0.13	48,48,50,51	0
5	8P4	A	2005[B]	11/11	0.76	0.18	33,36,40,43	11
5	8P4	A	2005[A]	11/11	0.76	0.18	34,35,38,40	11
5	8P4	B	2005[B]	11/11	0.77	0.16	29,31,33,36	11

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
5	8P4	B	2005[A]	11/11	0.77	0.16	27,31,36,39	11
3	PEG	B	2009	7/7	0.79	0.16	38,39,43,45	0
7	SO4	A	2028	5/5	0.79	0.12	50,55,59,62	5
7	SO4	A	2029	5/5	0.80	0.17	30,34,39,42	5
3	PEG	B	2003	7/7	0.81	0.13	34,37,43,44	0
7	SO4	A	2023	5/5	0.81	0.19	29,30,33,34	5
7	SO4	B	2022	5/5	0.81	0.15	29,34,38,39	5
7	SO4	B	2018	5/5	0.82	0.14	33,38,40,47	5
7	SO4	B	2021	5/5	0.82	0.15	32,32,44,46	5
7	SO4	A	2026	5/5	0.82	0.14	32,32,37,41	5
7	SO4	B	2020	5/5	0.84	0.16	27,27,31,32	5
6	FMT	A	2014	3/3	0.85	0.13	32,32,36,43	0
6	FMT	A	2008	3/3	0.86	0.10	44,44,45,50	0
3	PEG	A	2012	7/7	0.86	0.11	30,34,38,43	0
4	PGE	A	2003	10/10	0.86	0.12	30,37,47,49	0
7	SO4	A	2017	5/5	0.86	0.15	26,29,34,42	5
7	SO4	A	2020	5/5	0.87	0.11	47,48,51,53	5
7	SO4	A	2021	5/5	0.87	0.12	36,36,37,40	5
6	FMT	B	2011	3/3	0.87	0.11	41,41,42,44	0
7	SO4	B	2015	5/5	0.87	0.11	34,35,38,46	5
3	PEG	B	2004	7/7	0.88	0.11	33,35,41,43	0
7	SO4	A	2018	5/5	0.88	0.10	47,50,54,55	5
7	SO4	A	2030	5/5	0.88	0.13	30,36,41,46	5
6	FMT	B	2012	3/3	0.88	0.10	40,40,40,41	3
3	PEG	A	2002	7/7	0.89	0.10	28,35,40,47	0
3	PEG	A	2004	7/7	0.89	0.10	35,40,40,46	0
7	SO4	B	2016	5/5	0.90	0.12	22,31,37,38	5
6	FMT	A	2013	3/3	0.90	0.14	32,32,34,39	0
7	SO4	A	2024	5/5	0.90	0.15	23,32,35,40	5
6	FMT	B	2006	3/3	0.90	0.16	25,25,31,33	0
7	SO4	A	2027	5/5	0.90	0.12	26,34,39,40	5
7	SO4	A	2025	5/5	0.91	0.10	34,40,42,50	5
6	FMT	A	2010	3/3	0.91	0.09	41,41,43,50	0
6	FMT	B	2010	3/3	0.91	0.13	39,39,39,46	0
2	FAD	A	2001	53/53	0.91	0.10	18,28,33,35	53
2	FAD	B	2001	53/53	0.91	0.09	23,28,35,37	0
6	FMT	A	2009	3/3	0.91	0.09	32,32,33,43	0
7	SO4	B	2019	5/5	0.92	0.09	33,33,40,43	5
7	SO4	A	2022	5/5	0.92	0.12	24,31,34,37	5
4	PGE	B	2002	10/10	0.92	0.09	29,34,39,48	0
7	SO4	A	2019	5/5	0.92	0.10	30,36,38,43	5
7	SO4	B	2017	5/5	0.93	0.13	25,26,34,34	5

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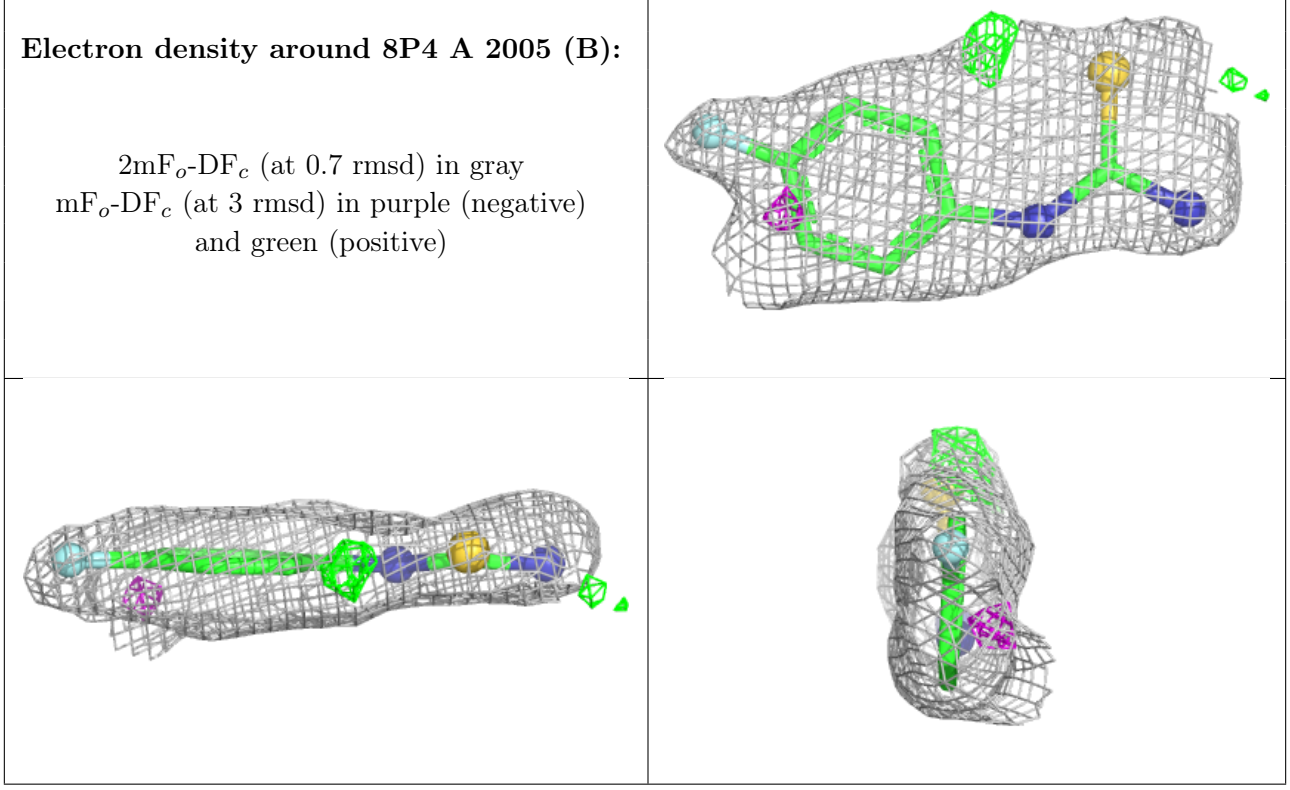
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
6	FMT	A	2006	3/3	0.93	0.09	30,30,33,38	0
7	SO4	B	2014	5/5	0.94	0.11	28,28,32,38	5
6	FMT	B	2008	3/3	0.94	0.08	33,33,33,41	0
7	SO4	A	2016	5/5	0.94	0.10	28,29,36,36	5
7	SO4	A	2015	5/5	0.97	0.06	21,23,23,25	0
7	SO4	B	2013	5/5	0.98	0.06	22,22,26,27	0

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.

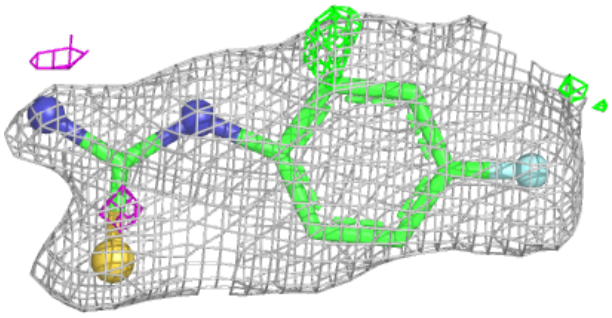
Electron density around 8P4 A 2005 (B):

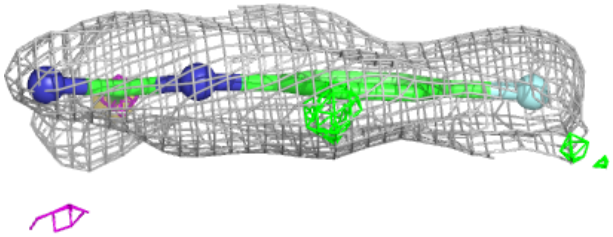
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

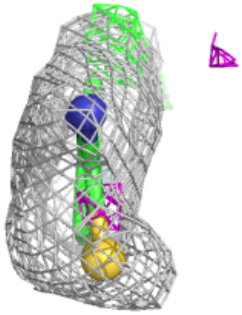


Electron density around 8P4 A 2005 (A):

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

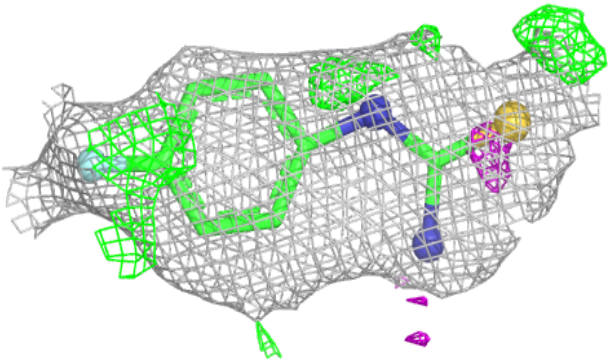


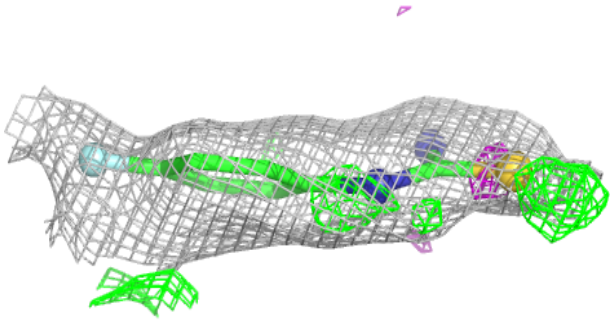


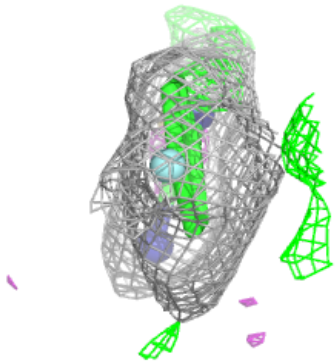


Electron density around 8P4 B 2005 (B):

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

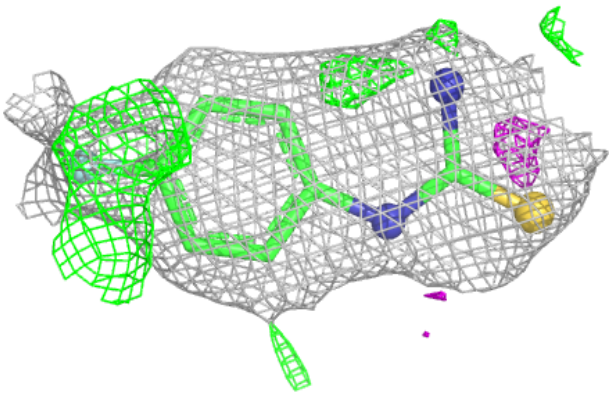


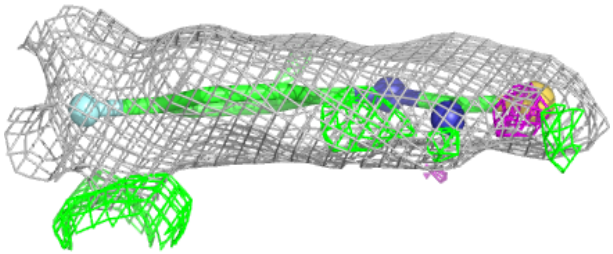


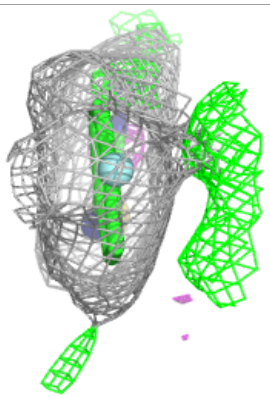


Electron density around 8P4 B 2005 (A):

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

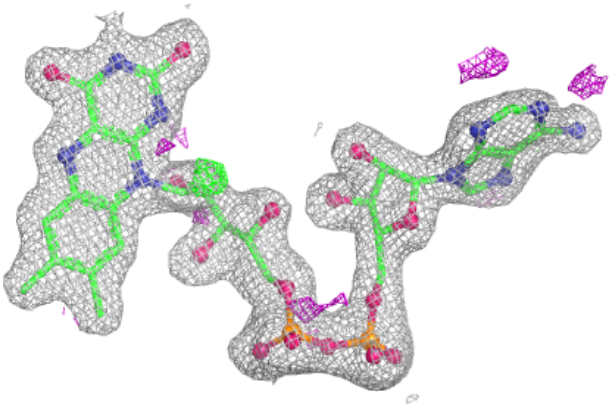


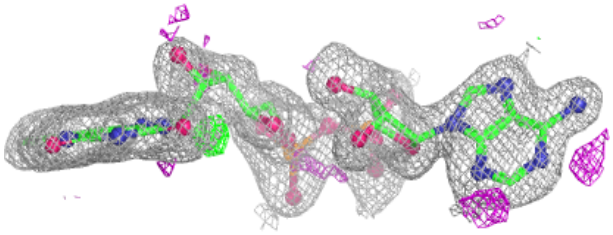


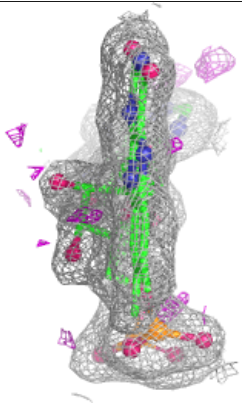


Electron density around FAD A 2001:

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

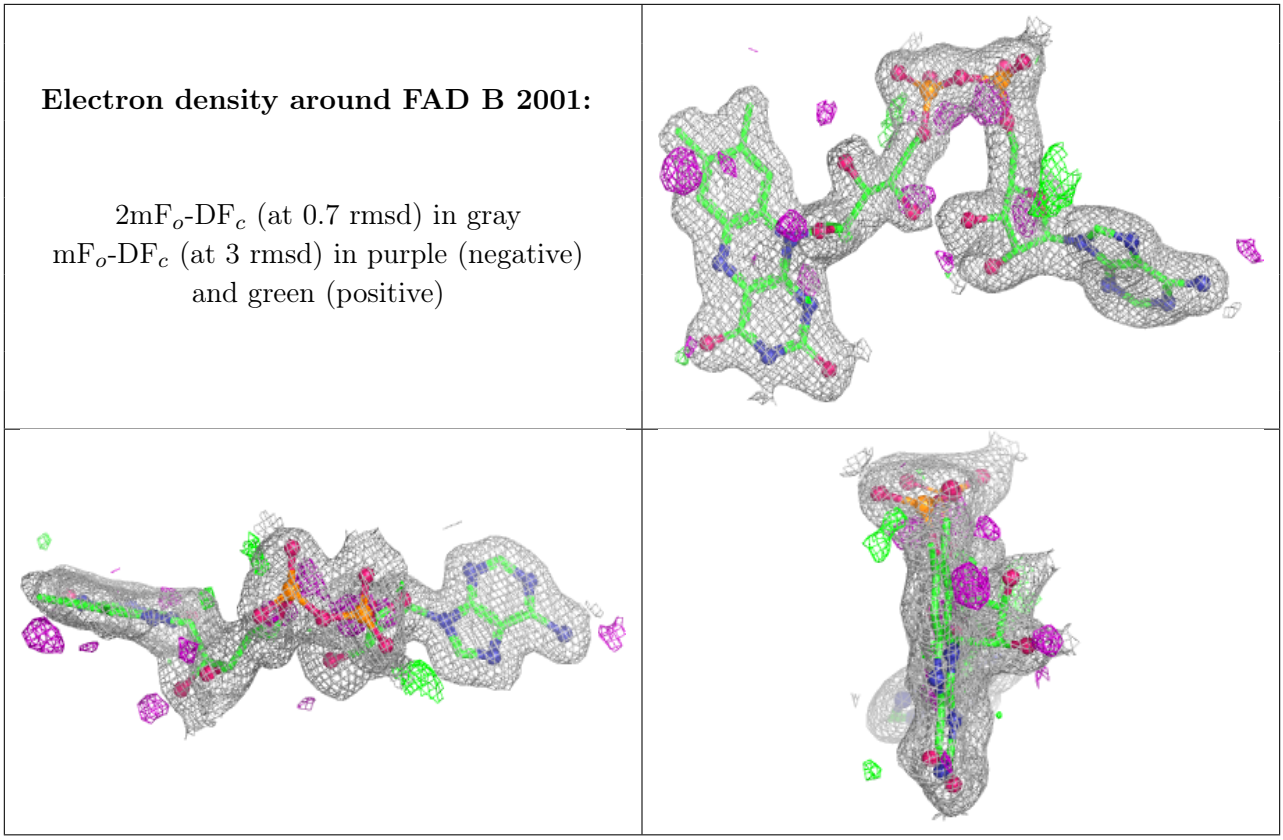






Electron density around FAD B 2001:

$2mF_o$-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.