Full wwPDB X-ray Structure Validation Report ⓘ

Nov 2, 2023 – 08:56 PM EDT

PDB ID	:	3W88
Title	:	Structure of Trypanosoma cruzi dihydroorotate dehydrogenase in complex with SH-1-200
Authors	:	Inaoka, D.K.; Hashimoto, S.; Rocha, J.R.; Iida, M.; Tabuchi, T.; Lee, N.; Matsuoka, S.; Kuranaga, T.; Shiba, T.; Balogun, E.O.; Sakamoto, K.; Suzuki, S.; Montanari, C.A.; Nara, T.; Aoki, T.; Inoue, M.; Honma, T.; Tanaka, A.; Harada, S.; Kita, K.
Deposited on	:	2013-03-12
Resolution	:	1.40 Å(reported)

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

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

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

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

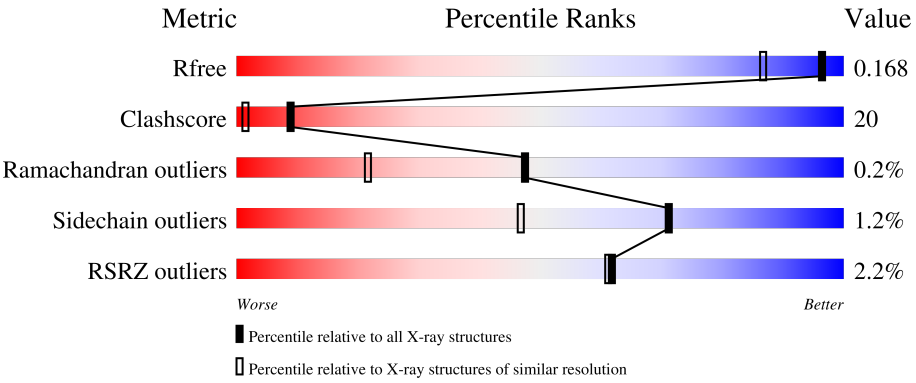
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)

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 1.40 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1714 (1.40-1.40)
Clashscore	141614	1812 (1.40-1.40)
Ramachandran outliers	138981	1763 (1.40-1.40)
Sidechain outliers	138945	1762 (1.40-1.40)
RSRZ outliers	127900	1674 (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	314	3% 75% 21%
1	B	314	2% 80% 17%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard

Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

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
3	GOL	B	412	-	-	X	-
6	EDO	A	423	-	-	X	-
6	EDO	A	427	-	-	-	X
6	EDO	A	433	-	-	X	-
6	EDO	A	434	-	-	X	-
6	EDO	A	435	-	-	X	X
6	EDO	B	416	-	-	X	-
6	EDO	B	418	-	-	X	-
6	EDO	B	420	-	-	-	X
6	EDO	B	424	-	-	X	-
7	PEG	A	437[A]	-	-	X	-
7	PEG	A	437[B]	-	-	X	-
7	PEG	A	438	-	-	X	-
7	PEG	A	439	-	-	X	-
7	PEG	A	440	-	-	X	-
7	PEG	B	431[A]	-	-	-	X
7	PEG	B	431[B]	-	-	-	X
7	PEG	B	432	-	-	X	-
7	PEG	B	433	-	-	X	-

2 Entry composition

There are 9 unique types of molecules in this entry. The entry contains 6466 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.

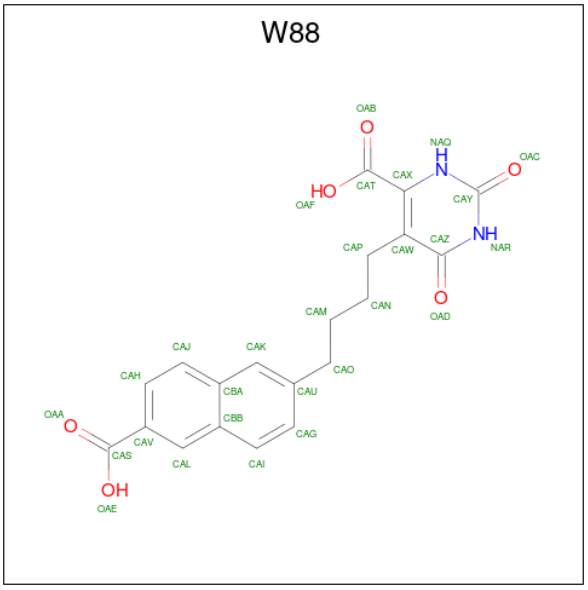
- Molecule 1 is a protein called Dihydroorotate dehydrogenase (fumarate).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	314	Total	C	N	O	S	0	19	0
			2554	1629	427	479	19			
1	B	314	Total	C	N	O	S	0	17	0
			2533	1609	427	478	19			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-1	SER	-	expression tag	UNP Q4D3W2
B	-1	SER	-	expression tag	UNP Q4D3W2

- Molecule 2 is 5-[4-(6-carboxynaphthalen-2-yl)butyl]-2,6-dioxo-1,2,3,6-tetrahydropyrimidine-4-carboxylic acid (three-letter code: W88) (formula: $C_{20}H_{18}N_2O_6$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	C	N	O	0	0
			28	20	2	6		

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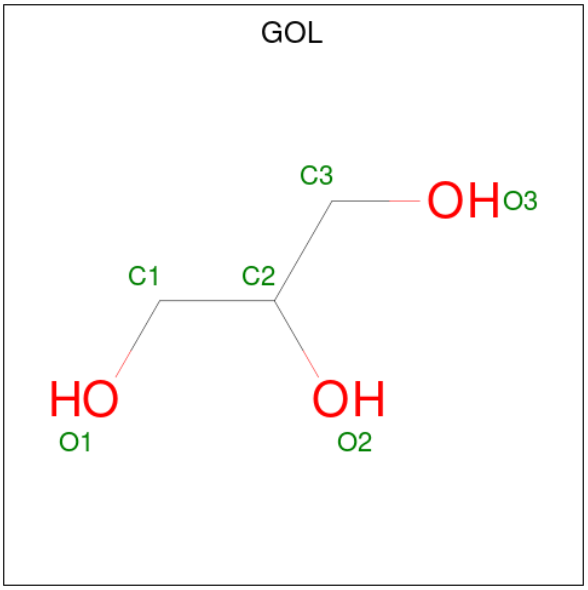
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	B	1	Total C N O 56 40 4 12	0	1

- Molecule 3 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C O 12 6 6	0	1
3	A	1	Total C O 6 3 3	0	0
3	A	1	Total C O 6 3 3	0	0
3	A	1	Total C O 6 3 3	0	0
3	A	1	Total C O 6 3 3	0	0
3	A	1	Total C O 12 6 6	0	1
3	A	1	Total C O 6 3 3	0	0
3	A	1	Total C O 6 3 3	0	0
3	A	1	Total C O 6 3 3	0	0
3	A	1	Total C O 6 3 3	0	0

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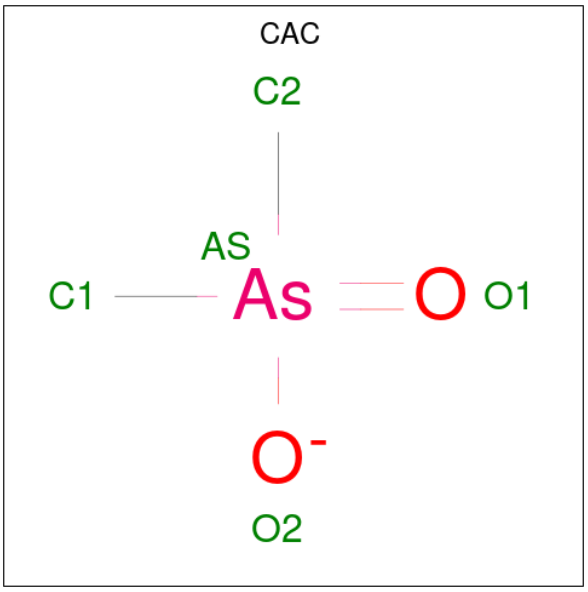
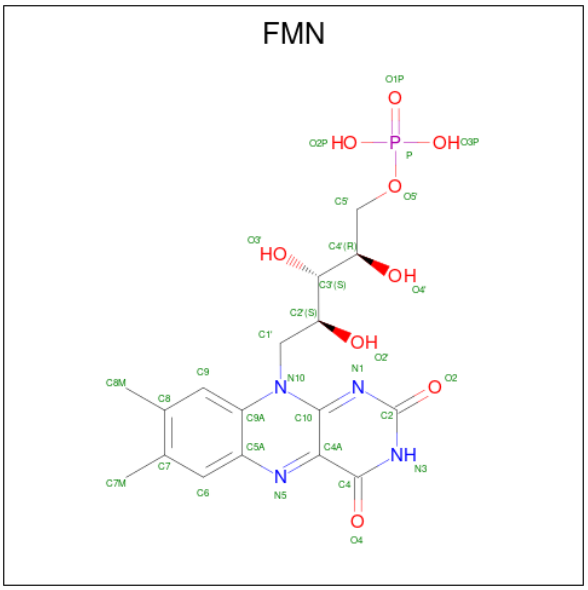
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total 6	C 3	O 3	0	0
3	A	1	Total 6	C 3	O 3	0	0
3	A	1	Total 6	C 3	O 3	0	0
3	B	1	Total 6	C 3	O 3	0	0
3	B	1	Total 6	C 3	O 3	0	0
3	B	1	Total 12	C 6	O 6	0	1
3	B	1	Total 6	C 3	O 3	0	0
3	B	1	Total 6	C 3	O 3	0	0
3	B	1	Total 6	C 3	O 3	0	0
3	B	1	Total 6	C 3	O 3	0	0
3	B	1	Total 6	C 3	O 3	0	0
3	B	1	Total 6	C 3	O 3	0	0
3	B	1	Total 6	C 3	O 3	0	0
3	B	1	Total 6	C 3	O 3	0	0

- Molecule 4 is CACODYLATE ION (three-letter code: CAC) (formula: $C_2H_6AsO_2$).



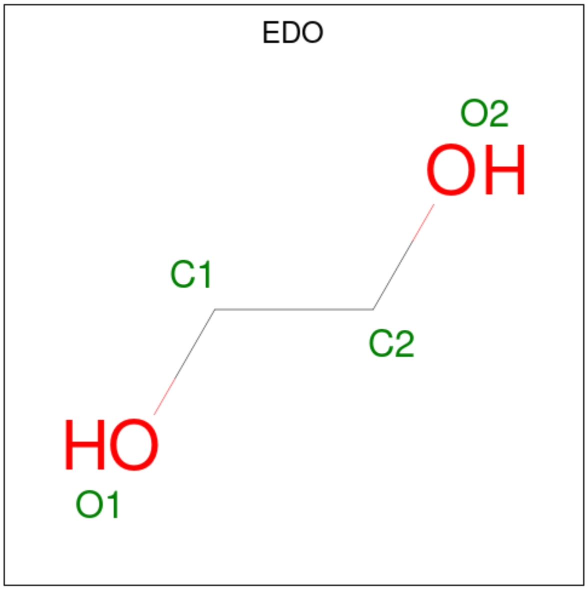
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total As C O 5 1 2 2	0	0
4	A	1	Total As C O 5 1 2 2	0	0
4	B	1	Total As C O 5 1 2 2	0	0
4	B	1	Total As C O 5 1 2 2	0	0

- Molecule 5 is FLAVIN MONONUCLEOTIDE (three-letter code: FMN) (formula: $C_{17}H_{21}N_4O_9P$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total C N O P 31 17 4 9 1	0	0
5	B	1	Total C N O P 31 17 4 9 1	0	0

- Molecule 6 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: $C_2H_6O_2$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	1	Total C O 4 2 2	0	0
6	A	1	Total C O 4 2 2	0	0
6	A	1	Total C O 4 2 2	0	0
6	A	1	Total C O 4 2 2	0	0
6	A	1	Total C O 4 2 2	0	0
6	A	1	Total C O 4 2 2	0	0
6	A	1	Total C O 4 2 2	0	0
6	A	1	Total C O 4 2 2	0	0
6	A	1	Total C O 4 2 2	0	0
6	A	1	Total C O 4 2 2	0	0

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	1	Total C O 4 2 2	0	0
6	A	1	Total C O 4 2 2	0	0
6	A	1	Total C O 4 2 2	0	0
6	A	1	Total C O 4 2 2	0	0
6	A	1	Total C O 4 2 2	0	0
6	A	1	Total C O 4 2 2	0	0
6	A	1	Total C O 4 2 2	0	0
6	A	1	Total C O 4 2 2	0	0
6	B	1	Total C O 4 2 2	0	0
6	B	1	Total C O 4 2 2	0	0
6	B	1	Total C O 4 2 2	0	0
6	B	1	Total C O 4 2 2	0	0
6	B	1	Total C O 4 2 2	0	0
6	B	1	Total C O 4 2 2	0	0
6	B	1	Total C O 4 2 2	0	0
6	B	1	Total C O 4 2 2	0	0
6	B	1	Total C O 4 2 2	0	0
6	B	1	Total C O 4 2 2	0	0
6	B	1	Total C O 4 2 2	0	0
6	B	1	Total C O 4 2 2	0	0
6	B	1	Total C O 4 2 2	0	0

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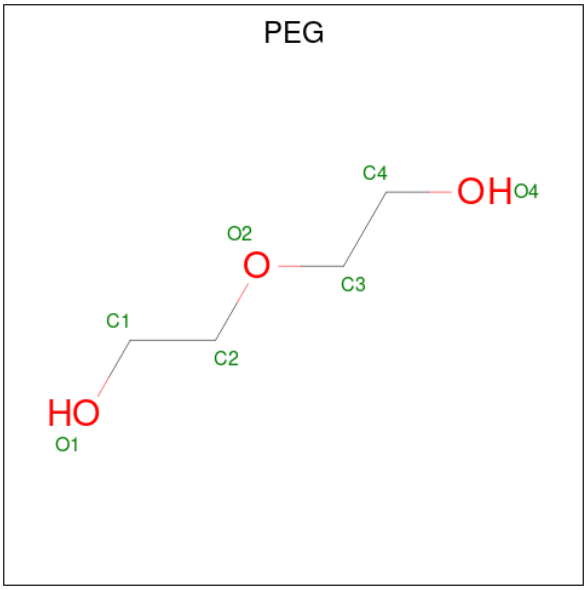
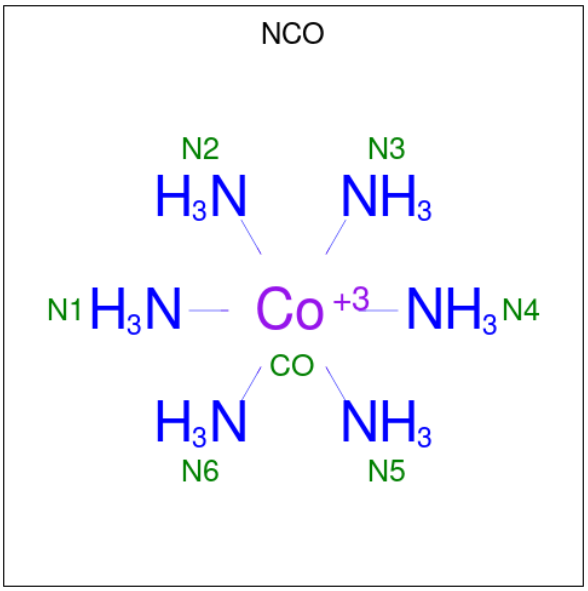
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	B	1	Total C O 4 2 2	0	0
6	B	1	Total C O 4 2 2	0	0

- Molecule 7 is DI(HYDROXYETHYL)ETHER (three-letter code: PEG) (formula: $C_4H_{10}O_3$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	1	Total C O 7 4 3	0	0
7	A	1	Total C O 14 8 6	0	1
7	A	1	Total C O 7 4 3	0	0
7	A	1	Total C O 7 4 3	0	0
7	A	1	Total C O 7 4 3	0	0
7	B	1	Total C O 14 8 6	0	1
7	B	1	Total C O 7 4 3	0	0
7	B	1	Total C O 7 4 3	0	0

- Molecule 8 is COBALT HEXAMMINE(III) (three-letter code: NCO) (formula: $CoH_{18}N_6$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	A	1	Total Co N 7 1 6	0	0
8	A	1	Total Co N 14 2 12	0	1

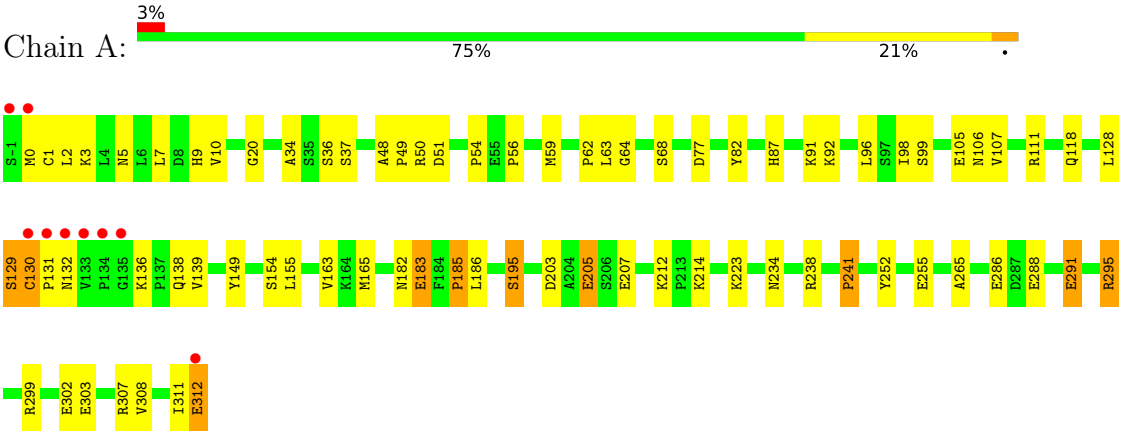
- Molecule 9 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
9	A	371	Total O 381 381	0	10
9	B	440	Total O 447 447	0	7

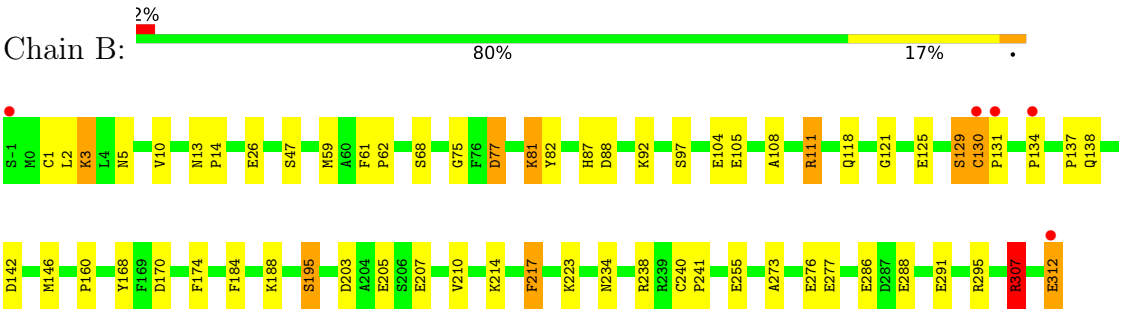
3 Residue-property plots (i)

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: Dihydroorotate dehydrogenase (fumarate)



• Molecule 1: Dihydroorotate dehydrogenase (fumarate)



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	67.97Å 71.52Å 129.54Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	36.96 – 1.40 36.96 – 1.40	Depositor EDS
% Data completeness (in resolution range)	95.1 (36.96-1.40) 95.1 (36.96-1.40)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.93 (at 1.40Å)	Xtriage
Refinement program	REFMAC 5.7.0029	Depositor
R, R_{free}	0.139 , 0.166 0.143 , 0.168	Depositor DCC
R_{free} test set	5941 reflections (5.01%)	wwPDB-VP
Wilson B-factor (Å^2)	8.3	Xtriage
Anisotropy	0.066	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 50.1	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.33$	Xtriage
Estimated twinning fraction	0.006 for k,h,-l	Xtriage
F_o,F_c correlation	0.97	EDS
Total number of atoms	6466	wwPDB-VP
Average B, all atoms (Å^2)	14.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 26.50 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 2.6031e-03. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

[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: EDO, GOL, NCO, PEG, FMN, W88, CAC

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	A	1.62	29/2606 (1.1%)	1.21	6/3524 (0.2%)
1	B	1.52	27/2585 (1.0%)	1.29	26/3496 (0.7%)
All	All	1.57	56/5191 (1.1%)	1.25	32/7020 (0.5%)

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	A	0	2

All (56) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	130[A]	CYS	C-N	18.62	1.69	1.34
1	A	130[B]	CYS	C-N	18.62	1.69	1.34
1	B	205[A]	GLU	CD-OE2	-11.18	1.13	1.25
1	B	205[B]	GLU	CD-OE2	-11.18	1.13	1.25
1	B	105	GLU	CD-OE1	-10.49	1.14	1.25
1	A	303	GLU	CD-OE1	-10.22	1.14	1.25
1	B	255	GLU	CD-OE1	-9.26	1.15	1.25
1	A	255	GLU	CD-OE1	-9.19	1.15	1.25
1	B	207	GLU	CD-OE1	-8.60	1.16	1.25
1	A	288	GLU	CD-OE2	-8.58	1.16	1.25
1	A	207	GLU	CD-OE1	-8.39	1.16	1.25
1	B	291	GLU	CG-CD	8.21	1.64	1.51
1	A	183	GLU	CD-OE2	-7.76	1.17	1.25
1	B	3	LYS	CE-NZ	7.74	1.68	1.49
1	B	195	SER	CB-OG	-7.39	1.32	1.42
1	A	183	GLU	CD-OE1	-7.15	1.17	1.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	56	PRO	N-CD	7.04	1.57	1.47
1	B	1	CYS	CB-SG	-7.04	1.70	1.82
1	A	185	PRO	N-CD	7.03	1.57	1.47
1	A	62	PRO	N-CD	6.99	1.57	1.47
1	A	49	PRO	N-CD	6.97	1.57	1.47
1	A	64	GLY	C-O	-6.91	1.12	1.23
1	B	3	LYS	CD-CE	6.81	1.68	1.51
1	B	288	GLU	CD-OE2	-6.71	1.18	1.25
1	B	288	GLU	CD-OE1	-6.48	1.18	1.25
1	A	241	PRO	N-CD	6.33	1.56	1.47
1	B	286	GLU	CD-OE1	-6.21	1.18	1.25
1	A	288	GLU	CD-OE1	-6.12	1.19	1.25
1	A	99	SER	CB-OG	-6.11	1.34	1.42
1	A	205[A]	GLU	CD-OE1	-6.07	1.19	1.25
1	A	205[B]	GLU	CD-OE1	-6.07	1.19	1.25
1	B	207	GLU	CD-OE2	-6.00	1.19	1.25
1	A	195	SER	CB-OG	-5.88	1.34	1.42
1	A	105	GLU	CD-OE2	-5.82	1.19	1.25
1	B	240	CYS	CB-SG	-5.75	1.72	1.81
1	A	295	ARG	CZ-NH2	-5.70	1.25	1.33
1	B	26	GLU	CD-OE1	-5.63	1.19	1.25
1	B	295	ARG	CZ-NH2	-5.52	1.25	1.33
1	B	307[A]	ARG	CG-CD	-5.46	1.38	1.51
1	B	307[B]	ARG	CG-CD	-5.46	1.38	1.51
1	B	255	GLU	CD-OE2	-5.45	1.19	1.25
1	B	134	PRO	N-CD	5.45	1.55	1.47
1	A	54	PRO	N-CD	5.44	1.55	1.47
1	B	130[A]	CYS	CA-C	5.37	1.67	1.52
1	B	130[B]	CYS	CA-C	5.37	1.67	1.52
1	B	61	PHE	CB-CG	-5.34	1.42	1.51
1	A	59	MET	C-O	-5.29	1.13	1.23
1	A	36	SER	CB-OG	-5.24	1.35	1.42
1	B	26	GLU	CD-OE2	-5.22	1.20	1.25
1	B	137	PRO	N-CD	5.17	1.55	1.47
1	A	265	ALA	C-O	-5.16	1.13	1.23
1	A	136	LYS	N-CA	5.14	1.56	1.46
1	A	48	ALA	C-O	-5.08	1.13	1.23
1	B	75	GLY	C-O	-5.02	1.15	1.23
1	A	96	LEU	CB-CG	-5.02	1.38	1.52
1	A	291	GLU	CG-CD	5.00	1.59	1.51

All (32) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	3	LYS	CD-CE-NZ	14.44	144.92	111.70
1	A	129	SER	O-C-N	-10.41	106.03	122.70
1	B	129	SER	O-C-N	-9.33	107.77	122.70
1	B	130[A]	CYS	CA-CB-SG	9.05	130.28	114.00
1	B	130[B]	CYS	CA-CB-SG	9.05	130.28	114.00
1	B	1	CYS	N-CA-CB	-8.41	95.47	110.60
1	B	307[A]	ARG	NE-CZ-NH1	-8.33	116.14	120.30
1	B	307[B]	ARG	NE-CZ-NH1	-8.33	116.14	120.30
1	B	77	ASP	CB-CG-OD2	-8.22	110.90	118.30
1	B	307[A]	ARG	CG-CD-NE	-8.20	94.59	111.80
1	B	307[B]	ARG	CG-CD-NE	-8.20	94.59	111.80
1	B	146	MET	CG-SD-CE	-7.87	87.61	100.20
1	A	77	ASP	CB-CG-OD2	-7.29	111.74	118.30
1	A	299	ARG	NE-CZ-NH2	-7.23	116.68	120.30
1	B	307[A]	ARG	NE-CZ-NH2	6.93	123.76	120.30
1	B	307[B]	ARG	NE-CZ-NH2	6.93	123.76	120.30
1	B	142	ASP	CB-CG-OD2	-6.21	112.71	118.30
1	B	111[A]	ARG	NE-CZ-NH2	5.88	123.24	120.30
1	B	111[B]	ARG	NE-CZ-NH2	5.88	123.24	120.30
1	A	51	ASP	CB-CG-OD2	-5.87	113.02	118.30
1	B	129	SER	CA-C-N	5.62	129.55	117.20
1	A	291	GLU	CB-CG-CD	5.51	129.09	114.20
1	B	111[A]	ARG	NE-CZ-NH1	-5.42	117.59	120.30
1	B	111[B]	ARG	NE-CZ-NH1	-5.42	117.59	120.30
1	B	130[A]	CYS	N-CA-CB	-5.29	101.09	110.60
1	B	130[B]	CYS	N-CA-CB	-5.29	101.09	110.60
1	B	81	LYS	CD-CE-NZ	5.25	123.77	111.70
1	B	217	PHE	CB-CG-CD1	5.24	124.47	120.80
1	B	174	PHE	CB-CG-CD1	5.23	124.46	120.80
1	B	184	PHE	CB-CG-CD2	5.17	124.42	120.80
1	B	88	ASP	CB-CG-OD2	-5.09	113.72	118.30
1	A	302	GLU	OE1-CD-OE2	-5.09	117.19	123.30

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	129	SER	Mainchain

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2554	0	2540	115	0
1	B	2533	0	2512	62	0
2	A	28	0	16	1	0
2	B	56	0	32	8	0
3	A	90	0	119	6	0
3	B	72	0	95	12	0
4	A	10	0	0	2	0
4	B	10	0	0	0	0
5	A	31	0	19	1	0
5	B	31	0	19	0	0
6	A	72	0	107	34	0
6	B	60	0	88	31	0
7	A	42	0	59	38	0
7	B	28	0	40	18	0
8	A	21	0	0	2	0
9	A	381	0	0	25	0
9	B	447	0	0	28	0
All	All	6466	0	5646	230	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 20.

All (230) 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:3:LYS:CE	1:B:3:LYS:NZ	1.68	1.54
1:A:130[A]:CYS:C	1:A:131:PRO:N	1.69	1.42
1:A:130[B]:CYS:C	1:A:131:PRO:N	1.73	1.39
1:A:1:CYS:HB2	7:A:437[B]:PEG:H22	1.33	1.11
2:B:401[A]:W88:CAI	7:B:433:PEG:H22	1.81	1.10
1:A:2:LEU:HD12	1:A:286:GLU:HG3	1.29	1.09
1:A:130[A]:CYS:SG	1:A:139:VAL:HG23	1.94	1.07
1:A:128:LEU:CD1	1:A:163[B]:VAL:HG21	1.86	1.05
1:A:1:CYS:HB2	7:A:437[A]:PEG:H22	1.32	1.04
2:B:401[A]:W88:H17	7:B:433:PEG:C2	1.91	1.01

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:401[A]:W88:H17	7:B:433:PEG:H22	1.01	1.00
1:A:312[A]:GLU:OE2	1:A:312[A]:GLU:HA	1.57	1.00
1:A:185:PRO:HG2	7:A:440:PEG:H22	1.44	0.96
1:A:5:ASN:HB3	6:A:433:EDO:C2	1.98	0.94
1:A:5:ASN:ND2	1:A:10[A]:VAL:HG22	1.83	0.93
1:B:130[B]:CYS:SG	1:B:131:PRO:HD2	2.09	0.93
1:A:2:LEU:HD12	1:A:286:GLU:CG	2.01	0.90
1:B:195:SER:OG	3:B:402:GOL:H11	1.73	0.89
1:A:128:LEU:HD12	1:A:163[B]:VAL:HG21	1.56	0.88
1:A:312[A]:GLU:OE2	1:A:312[A]:GLU:CA	2.18	0.88
7:A:438:PEG:H31	7:A:440:PEG:C1	2.05	0.86
6:B:429:EDO:H22	9:B:875:HOH:O	1.75	0.86
1:B:111[B]:ARG:NH2	7:B:432:PEG:C2	2.39	0.86
1:B:131:PRO:HD3	2:B:401[B]:W88:CAK	2.07	0.85
1:B:277:GLU:HB2	6:B:418:EDO:H12	1.60	0.84
7:A:438:PEG:H31	7:A:440:PEG:H12	1.57	0.84
1:A:5:ASN:HD21	1:A:10[A]:VAL:HG22	1.42	0.82
1:A:312[A]:GLU:HG3	9:B:744:HOH:O	1.78	0.82
2:B:401[A]:W88:CAI	7:B:433:PEG:C2	2.55	0.81
1:A:131:PRO:HB3	2:A:401:W88:CAI	2.12	0.80
1:A:234:ASN:HD21	1:A:238:ARG:HE	1.30	0.80
1:A:128:LEU:CD1	1:A:163[B]:VAL:CG2	2.60	0.79
1:B:130[B]:CYS:SG	1:B:131:PRO:CD	2.71	0.79
1:A:128:LEU:HD11	1:A:163[B]:VAL:HG21	1.65	0.79
1:A:128:LEU:HG	1:A:163[B]:VAL:HG23	1.63	0.78
1:A:5:ASN:HB3	6:A:433:EDO:O2	1.84	0.77
1:A:185:PRO:HG2	7:A:440:PEG:C2	2.14	0.77
1:A:2:LEU:CD1	1:A:286:GLU:HG3	2.12	0.76
1:A:128:LEU:HG	1:A:163[B]:VAL:CG2	2.15	0.76
1:A:138[B]:GLN:HG2	1:B:170:ASP:OD2	1.86	0.76
7:B:431[B]:PEG:O1	7:B:431[B]:PEG:H32	1.76	0.75
6:B:421:EDO:H11	9:B:584:HOH:O	1.87	0.74
1:B:59:MET:HE3	9:B:601:HOH:O	1.87	0.74
1:A:5:ASN:HB3	6:A:433:EDO:H21	1.71	0.73
1:A:185:PRO:HD2	7:A:439:PEG:H42	1.70	0.72
1:B:59:MET:CE	9:B:601:HOH:O	2.38	0.72
1:B:195:SER:OG	3:B:402:GOL:C1	2.37	0.72
6:B:429:EDO:H12	9:B:555:HOH:O	1.88	0.72
6:A:434:EDO:H12	8:A:442[B]:NCO:N1	2.05	0.72
1:A:91:LYS:O	6:A:423:EDO:H22	1.89	0.71
1:A:154:SER:CB	7:A:438:PEG:H22	2.21	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:63:LEU:HD11	6:B:419:EDO:H22	1.74	0.70
1:A:2:LEU:HB2	7:A:437[B]:PEG:H12	1.72	0.70
1:A:154:SER:HB3	7:A:438:PEG:H22	1.73	0.70
1:B:273:ALA:HB1	6:B:418:EDO:H11	1.75	0.69
1:B:111[B]:ARG:NH2	7:B:432:PEG:H21	2.07	0.69
1:B:47[B]:SER:O	6:B:416:EDO:H12	1.92	0.69
1:B:111[B]:ARG:NH2	7:B:432:PEG:H22	2.09	0.67
1:A:138[B]:GLN:CG	1:B:170:ASP:OD2	2.43	0.67
1:B:234:ASN:HD21	1:B:238:ARG:HE	1.40	0.67
1:B:131:PRO:CD	2:B:401[B]:W88:CAK	2.73	0.66
7:A:438:PEG:C3	7:A:440:PEG:C1	2.73	0.66
1:B:81:LYS:HE2	9:B:904:HOH:O	1.94	0.66
6:A:434:EDO:H22	8:A:442[A]:NCO:N6	2.10	0.65
6:B:419:EDO:H21	9:B:863:HOH:O	1.96	0.65
6:B:430:EDO:H12	9:B:940:HOH:O	1.97	0.65
7:A:439:PEG:H32	9:A:870:HOH:O	1.96	0.64
1:A:138[A]:GLN:HG3	9:A:855:HOH:O	1.97	0.64
7:A:438:PEG:H31	7:A:440:PEG:H11	1.79	0.63
1:A:106:ASN:CG	1:A:149[B]:TYR:OH	2.37	0.63
1:B:111[B]:ARG:HH22	7:B:432:PEG:H22	1.63	0.63
1:A:2:LEU:H	7:A:437[A]:PEG:C2	2.12	0.62
7:A:438:PEG:C3	7:A:440:PEG:H12	2.27	0.62
1:A:154:SER:O	7:A:438:PEG:H41	1.99	0.62
1:A:128:LEU:HD12	1:A:163[A]:VAL:CG1	2.28	0.62
1:A:2:LEU:H	7:A:437[B]:PEG:C2	2.12	0.62
1:B:276:GLU:HB2	6:B:418:EDO:H22	1.81	0.62
7:A:439:PEG:C3	9:A:870:HOH:O	2.48	0.62
1:A:68[B]:SER:OG	1:A:214[B]:LYS:NZ	2.33	0.61
1:B:68[B]:SER:OG	1:B:214[B]:LYS:NZ	2.32	0.61
3:B:409:GOL:C3	9:B:693:HOH:O	2.49	0.61
6:A:420:EDO:H21	9:A:534:HOH:O	2.00	0.61
6:A:434:EDO:H11	9:A:734[A]:HOH:O	2.00	0.61
1:A:128:LEU:CG	1:A:163[B]:VAL:CG2	2.79	0.61
6:B:421:EDO:C1	9:B:584:HOH:O	2.46	0.60
1:A:82:TYR:OH	1:A:87:HIS:HD2	1.84	0.60
6:A:427:EDO:H21	9:A:665:HOH:O	2.01	0.60
3:B:412:GOL:C1	9:B:628:HOH:O	2.49	0.60
1:A:3[C]:LYS:HZ3	1:A:3[C]:LYS:C	2.05	0.60
1:B:195:SER:HB3	9:B:675:HOH:O	2.01	0.60
1:A:241:PRO:HB3	3:A:413:GOL:H12	1.84	0.60
1:A:2:LEU:H	7:A:437[B]:PEG:C1	2.15	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:128:LEU:CD1	1:A:163[A]:VAL:CG1	2.80	0.59
7:A:437[A]:PEG:H11	9:A:653:HOH:O	2.02	0.59
1:A:3[A]:LYS:N	7:A:437[A]:PEG:H21	2.18	0.58
1:B:5[B]:ASN:ND2	1:B:10:VAL:HG22	2.18	0.58
1:A:3[C]:LYS:C	1:A:3[C]:LYS:NZ	2.57	0.58
1:A:183:GLU:HB3	7:A:439:PEG:H12	1.85	0.58
1:A:163[A]:VAL:HG12	1:A:165:MET:SD	2.44	0.58
1:A:98[A]:ILE:O	1:A:98[A]:ILE:HG13	2.04	0.58
1:A:128:LEU:CD1	1:A:163[A]:VAL:HG13	2.35	0.57
1:B:82:TYR:OH	1:B:87:HIS:HD2	1.88	0.57
7:A:437[B]:PEG:H11	9:A:653:HOH:O	2.04	0.57
6:A:435:EDO:C2	9:A:657:HOH:O	2.53	0.57
1:B:92:LYS:HE2	6:B:424:EDO:H12	1.86	0.57
1:B:223[B]:LYS:NZ	3:B:412:GOL:H2	2.20	0.57
4:A:416:CAC:C2	6:A:427:EDO:H11	2.35	0.56
1:A:2:LEU:HB2	7:A:437[A]:PEG:H12	1.88	0.56
1:A:182:ASN:O	6:A:435:EDO:H21	2.05	0.56
1:A:149[A]:TYR:HE1	9:A:689:HOH:O	1.89	0.55
2:B:401[A]:W88:H18	7:B:433:PEG:H12	1.88	0.55
1:A:130[B]:CYS:C	1:A:131:PRO:CD	2.69	0.55
1:A:312[A]:GLU:OE2	1:A:312[A]:GLU:N	2.40	0.55
1:B:241:PRO:HA	3:B:408:GOL:H31	1.89	0.55
1:B:121:GLY:CA	6:B:423:EDO:H22	2.37	0.55
1:A:1:CYS:CB	7:A:437[A]:PEG:H22	2.23	0.54
1:A:1:CYS:CB	7:A:437[B]:PEG:H22	2.24	0.54
1:A:234:ASN:ND2	1:A:238:ARG:HE	2.02	0.54
6:B:416:EDO:H11	9:B:539:HOH:O	2.07	0.54
1:A:130[A]:CYS:SG	1:A:139:VAL:CG2	2.85	0.54
1:A:312[A]:GLU:CG	9:B:744:HOH:O	2.48	0.54
1:B:108:ALA:CB	7:B:432:PEG:H12	2.37	0.54
1:A:128:LEU:HD12	1:A:163[B]:VAL:CG2	2.32	0.53
1:B:234:ASN:ND2	1:B:238:ARG:HE	2.07	0.53
1:B:111[B]:ARG:HH21	7:B:432:PEG:C1	2.21	0.53
1:A:130[A]:CYS:C	1:A:131:PRO:CA	2.70	0.53
7:A:436:PEG:H21	9:B:808:HOH:O	2.08	0.53
1:B:47[B]:SER:O	6:B:416:EDO:C1	2.57	0.53
1:A:5:ASN:CB	6:A:433:EDO:O2	2.55	0.53
1:A:128:LEU:HD12	1:A:163[A]:VAL:HG11	1.90	0.53
3:A:411:GOL:H12	9:A:799:HOH:O	2.08	0.53
1:A:2:LEU:CD1	1:A:286:GLU:CG	2.78	0.52
1:A:154:SER:HB2	7:A:438:PEG:H22	1.89	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:62:PRO:HB3	6:B:430:EDO:H21	1.91	0.52
1:A:92:LYS:HE2	6:A:423:EDO:H11	1.92	0.51
6:A:435:EDO:C1	9:A:657:HOH:O	2.58	0.51
1:A:87:HIS:HE1	1:A:92:LYS:O	1.92	0.51
1:A:128:LEU:HG	1:A:163[A]:VAL:HG13	1.93	0.51
1:B:62:PRO:HD3	7:B:431[B]:PEG:H21	1.93	0.51
1:A:195:SER:HB3	9:A:798:HOH:O	2.11	0.50
1:B:87:HIS:HE1	1:B:92:LYS:O	1.93	0.50
1:B:203:ASP:HB2	3:B:410:GOL:H12	1.94	0.50
7:A:438:PEG:H21	7:A:440:PEG:O1	2.11	0.50
6:B:422:EDO:H11	9:B:527:HOH:O	2.11	0.50
1:A:128:LEU:CD1	1:A:163[A]:VAL:HG11	2.43	0.49
1:A:308:VAL:O	6:A:418:EDO:H21	2.11	0.49
1:A:205[A]:GLU:HG2	6:B:426:EDO:H12	1.94	0.49
1:B:131:PRO:HD3	2:B:401[B]:W88:H12	1.93	0.49
6:B:429:EDO:C2	9:B:875:HOH:O	2.49	0.49
1:A:130[A]:CYS:C	1:A:131:PRO:CD	2.73	0.48
1:A:203:ASP:HB2	6:A:434:EDO:H21	1.95	0.48
1:A:223[B]:LYS:HG3	1:A:252:TYR:CE1	2.48	0.48
1:B:160:PRO:HB2	6:B:425:EDO:H22	1.95	0.48
6:A:435:EDO:H22	9:A:657:HOH:O	2.12	0.48
1:B:104:GLU:HB3	7:B:432:PEG:H31	1.95	0.48
1:A:9:HIS:HE1	9:A:522:HOH:O	1.97	0.48
1:A:138[A]:GLN:CG	9:A:855:HOH:O	2.59	0.48
4:A:415:CAC:C1	9:A:784:HOH:O	2.62	0.48
3:B:412:GOL:H11	9:B:628:HOH:O	2.14	0.48
1:A:7:LEU:O	1:A:9:HIS:HD2	1.97	0.48
1:A:212:LYS:NZ	1:B:312:GLU:HG2	2.28	0.47
1:B:130[A]:CYS:SG	9:B:832:HOH:O	2.28	0.47
1:A:182:ASN:O	6:A:435:EDO:C2	2.63	0.47
1:A:2:LEU:N	7:A:437[B]:PEG:C2	2.77	0.47
1:A:91:LYS:O	6:A:423:EDO:C2	2.61	0.47
1:A:2:LEU:N	7:A:437[A]:PEG:C2	2.77	0.47
1:A:37:SER:O	6:A:423:EDO:H11	2.14	0.47
1:B:77:ASP:H	6:B:416:EDO:H11	1.78	0.47
1:B:210:VAL:HA	3:B:410:GOL:H31	1.97	0.47
6:A:434:EDO:C1	9:A:734[A]:HOH:O	2.59	0.46
1:A:2:LEU:H	7:A:437[A]:PEG:C1	2.25	0.46
7:A:436:PEG:H21	7:A:436:PEG:H41	1.49	0.46
1:B:129:SER:HA	1:B:138:GLN:NE2	2.31	0.46
6:A:432:EDO:C1	9:A:579:HOH:O	2.64	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:223[A]:LYS:HE3	3:B:412:GOL:H2	1.97	0.46
1:A:34:ALA:HB3	3:A:402[A]:GOL:H11	1.97	0.46
1:A:3[C]:LYS:HZ2	1:A:3[C]:LYS:HB3	1.80	0.46
1:A:186:LEU:HD21	7:A:440:PEG:H31	1.98	0.46
7:A:438:PEG:C3	7:A:440:PEG:H11	2.44	0.46
1:A:132:ASN:HB2	9:A:591:HOH:O	2.16	0.45
6:B:424:EDO:C2	9:B:634:HOH:O	2.63	0.45
1:A:106:ASN:ND2	1:A:149[B]:TYR:OH	2.49	0.45
1:A:312[A]:GLU:N	1:A:312[A]:GLU:CD	2.69	0.45
1:B:223[B]:LYS:HZ1	3:B:412:GOL:H2	1.81	0.45
6:B:424:EDO:H21	9:B:634:HOH:O	2.16	0.45
1:A:2:LEU:N	7:A:437[A]:PEG:H21	2.31	0.45
1:A:182:ASN:O	6:A:435:EDO:C1	2.65	0.44
1:B:108:ALA:HB2	7:B:432:PEG:H12	1.98	0.44
1:A:107:VAL:O	1:A:111[A]:ARG:HG3	2.17	0.44
1:A:163[A]:VAL:CG1	1:A:165:MET:SD	3.05	0.44
1:A:130[B]:CYS:SG	1:A:131:PRO:HD2	2.59	0.43
7:B:431[B]:PEG:O1	7:B:431[B]:PEG:C3	2.55	0.43
3:A:406:GOL:O3	6:A:434:EDO:C2	2.66	0.43
6:B:416:EDO:C2	9:B:539:HOH:O	2.66	0.43
6:A:425:EDO:H21	9:A:633:HOH:O	2.18	0.43
1:B:307[B]:ARG:NH2	9:B:825:HOH:O	2.44	0.43
1:A:130[B]:CYS:O	1:A:138[B]:GLN:NE2	2.49	0.43
1:B:130[B]:CYS:SG	1:B:131:PRO:N	2.90	0.43
1:A:155:LEU:HB2	7:A:438:PEG:H11	2.01	0.43
6:B:424:EDO:H11	9:B:512:HOH:O	2.19	0.43
1:A:238:ARG:NH2	6:A:418:EDO:H22	2.34	0.43
1:A:138[B]:GLN:HG3	1:B:170:ASP:OD2	2.19	0.42
1:B:188:LYS:HE3	9:B:909:HOH:O	2.19	0.42
3:A:414:GOL:H32	9:A:739:HOH:O	2.19	0.42
1:A:205[A]:GLU:HA	6:B:426:EDO:H21	2.01	0.42
1:B:2:LEU:HG	6:B:427:EDO:H12	2.00	0.42
6:B:420:EDO:H12	9:B:829:HOH:O	2.19	0.42
1:A:98[A]:ILE:O	1:A:98[A]:ILE:CG1	2.67	0.42
1:B:13:ASN:HB2	1:B:14:PRO:HD2	2.01	0.42
6:A:435:EDO:H12	9:A:657:HOH:O	2.18	0.42
1:B:241:PRO:HA	3:B:408:GOL:C3	2.49	0.42
1:B:97:SER:HA	1:B:125:GLU:O	2.20	0.42
7:B:433:PEG:H12	9:B:938[A]:HOH:O	2.19	0.42
1:A:20:GLY:HA3	5:A:417:FMN:N5	2.35	0.42
1:A:205[B]:GLU:HA	6:B:426:EDO:H21	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:A:420:EDO:C1	9:A:611:HOH:O	2.68	0.42
1:A:128:LEU:HD11	1:A:163[B]:VAL:CG2	2.43	0.41
1:A:308:VAL:O	6:A:418:EDO:C2	2.68	0.41
1:A:50:ARG:HA	6:A:420:EDO:H12	2.02	0.41
6:A:431:EDO:H22	9:A:689:HOH:O	2.20	0.41
1:B:111[B]:ARG:NH2	7:B:432:PEG:C1	2.81	0.41
1:B:160:PRO:HB3	1:B:188:LYS:HG3	2.03	0.41
1:A:107:VAL:O	1:A:111[B]:ARG:HG3	2.19	0.41
1:B:77:ASP:H	6:B:416:EDO:C1	2.33	0.41
1:A:307:ARG:HH22	6:A:426:EDO:H22	1.86	0.41
7:A:436:PEG:H12	1:B:168:TYR:HA	2.03	0.41
1:B:277:GLU:CB	6:B:418:EDO:H12	2.40	0.41
1:A:295:ARG:HH21	6:A:424:EDO:C1	2.34	0.40
3:A:403:GOL:H31	1:B:217:PHE:CE1	2.56	0.40
1:A:311:ILE:HG22	1:A:312[A]:GLU:HG2	2.02	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	330/314 (105%)	323 (98%)	6 (2%)	1 (0%)	41 18
1	B	329/314 (105%)	318 (97%)	11 (3%)	0	100 100
All	All	659/628 (105%)	641 (97%)	17 (3%)	1 (0%)	47 21

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	0	MET

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	278/259 (107%)	274 (99%)	4 (1%)	67 40
1	B	276/259 (107%)	272 (99%)	4 (1%)	67 40
All	All	554/518 (107%)	546 (99%)	8 (1%)	71 40

All (8) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	118	GLN
1	A	291	GLU
1	A	312[A]	GLU
1	A	312[B]	GLU
1	B	118	GLN
1	B	307[A]	ARG
1	B	307[B]	ARG
1	B	312	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (10) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	5	ASN
1	A	9	HIS
1	A	87	HIS
1	A	151	GLN
1	A	234	ASN
1	A	275	GLN
1	B	87	HIS
1	B	118	GLN
1	B	138	GLN
1	B	234	ASN

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 monosaccharides in this entry.

5.6 Ligand geometry (i)

82 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	$\#\|Z\| > 2$
7	PEG	B	431[A]	-	6,6,6	0.57	0	5,5,5	0.39	0
6	EDO	B	428	-	3,3,3	0.60	0	2,2,2	0.13	0
3	GOL	A	407[A]	-	5,5,5	0.29	0	5,5,5	0.35	0
3	GOL	B	409	-	5,5,5	0.68	0	5,5,5	0.62	0
3	GOL	B	406	-	5,5,5	0.38	0	5,5,5	0.35	0
4	CAC	A	415	-	0,4,4	-	-	0,6,6	-	-
3	GOL	A	402[A]	-	5,5,5	1.13	0	5,5,5	0.73	0
6	EDO	A	418	-	3,3,3	1.15	0	2,2,2	0.66	0
6	EDO	B	424	-	3,3,3	0.94	0	2,2,2	1.76	1 (50%)
6	EDO	A	419	-	3,3,3	0.55	0	2,2,2	0.38	0
3	GOL	A	413	-	5,5,5	0.77	0	5,5,5	0.97	0
7	PEG	A	440	-	6,6,6	0.50	0	5,5,5	0.97	0
6	EDO	B	416	-	3,3,3	1.43	0	2,2,2	1.49	0
7	PEG	A	436	-	6,6,6	1.02	1 (16%)	5,5,5	1.59	2 (40%)
2	W88	B	401[B]	-	29,30,30	1.53	6 (20%)	39,42,42	1.15	4 (10%)
4	CAC	B	413	-	0,4,4	-	-	0,6,6	-	-
6	EDO	B	421	-	3,3,3	0.59	0	2,2,2	0.32	0
6	EDO	B	420	-	3,3,3	0.60	0	2,2,2	0.08	0
6	EDO	A	431	-	3,3,3	0.80	0	2,2,2	0.44	0
6	EDO	A	420	-	3,3,3	0.88	0	2,2,2	1.27	0
3	GOL	B	411	-	5,5,5	0.67	0	5,5,5	0.91	0
6	EDO	B	429	-	3,3,3	0.57	0	2,2,2	0.27	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
6	EDO	B	417	-	3,3,3	0.25	0	2,2,2	1.18	0
4	CAC	A	416	-	0,4,4	-	-	0,6,6	-	-
7	PEG	B	433	-	6,6,6	0.41	0	5,5,5	0.96	0
6	EDO	A	433	-	3,3,3	1.18	0	2,2,2	1.10	0
2	W88	B	401[A]	-	29,30,30	1.76	5 (17%)	39,42,42	1.33	7 (17%)
4	CAC	B	414	-	0,4,4	-	-	0,6,6	-	-
3	GOL	A	404	-	5,5,5	0.47	0	5,5,5	0.52	0
5	FMN	A	417	-	33,33,33	1.32	3 (9%)	48,50,50	1.29	6 (12%)
5	FMN	B	415	-	33,33,33	1.39	6 (18%)	48,50,50	1.20	5 (10%)
8	NCO	A	442[B]	-	6,6,6	1.17	0	-		
6	EDO	B	422	-	3,3,3	0.35	0	2,2,2	0.08	0
3	GOL	B	404[B]	-	5,5,5	0.46	0	5,5,5	1.44	0
3	GOL	A	408	-	5,5,5	0.40	0	5,5,5	0.55	0
3	GOL	A	405	-	5,5,5	1.38	1 (20%)	5,5,5	1.73	1 (20%)
3	GOL	B	408	-	5,5,5	1.12	1 (20%)	5,5,5	1.03	0
8	NCO	A	441	-	6,6,6	2.77	6 (100%)	-		
7	PEG	A	437[B]	-	6,6,6	0.67	0	5,5,5	1.48	1 (20%)
7	PEG	A	439	-	6,6,6	0.72	0	5,5,5	1.79	1 (20%)
6	EDO	A	423	-	3,3,3	0.75	0	2,2,2	1.10	0
8	NCO	A	442[A]	-	6,6,6	0.89	0	-		
6	EDO	A	425	-	3,3,3	0.84	0	2,2,2	0.19	0
3	GOL	B	404[A]	-	5,5,5	0.96	0	5,5,5	0.76	0
3	GOL	B	405	-	5,5,5	0.95	0	5,5,5	1.40	1 (20%)
3	GOL	A	414	-	5,5,5	0.48	0	5,5,5	0.28	0
6	EDO	B	427	-	3,3,3	0.70	0	2,2,2	0.69	0
3	GOL	A	403	-	5,5,5	0.90	0	5,5,5	1.15	0
3	GOL	A	412	-	5,5,5	0.81	0	5,5,5	1.41	1 (20%)
6	EDO	A	434	-	3,3,3	0.50	0	2,2,2	0.93	0
6	EDO	B	418	-	3,3,3	0.80	0	2,2,2	0.87	0
2	W88	A	401	-	29,30,30	1.76	6 (20%)	39,42,42	1.31	5 (12%)
3	GOL	A	411	-	5,5,5	0.84	0	5,5,5	0.81	0
6	EDO	B	423	-	3,3,3	0.82	0	2,2,2	1.06	0
6	EDO	A	435	-	3,3,3	0.89	0	2,2,2	0.53	0
7	PEG	A	437[A]	-	6,6,6	0.80	0	5,5,5	1.60	1 (20%)
7	PEG	A	438	-	6,6,6	0.36	0	5,5,5	1.44	0
6	EDO	A	426	-	3,3,3	0.55	0	2,2,2	0.35	0
6	EDO	B	425	-	3,3,3	1.01	0	2,2,2	0.85	0
3	GOL	B	403	-	5,5,5	1.30	1 (20%)	5,5,5	1.10	0
6	EDO	A	429	-	3,3,3	0.89	0	2,2,2	0.44	0
7	PEG	B	431[B]	-	6,6,6	0.53	0	5,5,5	0.82	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
6	EDO	A	430	-	3,3,3	0.66	0	2,2,2	0.60	0
7	PEG	B	432	-	6,6,6	1.29	0	5,5,5	1.68	2 (40%)
3	GOL	A	407[B]	-	5,5,5	0.37	0	5,5,5	0.67	0
3	GOL	B	407	-	5,5,5	0.66	0	5,5,5	0.78	0
3	GOL	A	402[B]	-	5,5,5	1.19	0	5,5,5	1.28	1 (20%)
3	GOL	B	410	-	5,5,5	0.55	0	5,5,5	1.43	1 (20%)
3	GOL	B	402	-	5,5,5	0.61	0	5,5,5	1.06	0
6	EDO	B	430	-	3,3,3	0.86	0	2,2,2	0.46	0
3	GOL	A	406	-	5,5,5	0.82	0	5,5,5	1.47	2 (40%)
6	EDO	A	421	-	3,3,3	0.34	0	2,2,2	1.37	0
3	GOL	B	412	-	5,5,5	0.64	0	5,5,5	0.91	0
6	EDO	A	422	-	3,3,3	1.04	0	2,2,2	0.50	0
6	EDO	A	424	-	3,3,3	0.55	0	2,2,2	0.42	0
3	GOL	A	410	-	5,5,5	0.90	0	5,5,5	1.36	1 (20%)
6	EDO	B	426	-	3,3,3	0.51	0	2,2,2	1.15	0
6	EDO	A	432	-	3,3,3	0.80	0	2,2,2	0.72	0
6	EDO	B	419	-	3,3,3	0.77	0	2,2,2	0.82	0
6	EDO	A	427	-	3,3,3	0.56	0	2,2,2	0.05	0
6	EDO	A	428	-	3,3,3	0.61	0	2,2,2	0.41	0
3	GOL	A	409	-	5,5,5	0.78	0	5,5,5	1.17	1 (20%)

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
7	PEG	B	431[A]	-	-	3/4/4/4	-
3	GOL	B	408	-	-	4/4/4/4	-
6	EDO	A	435	-	-	1/1/1/1	-
7	PEG	A	437[A]	-	-	4/4/4/4	-
6	EDO	B	428	-	-	0/1/1/1	-
3	GOL	A	407[A]	-	-	1/4/4/4	-
3	GOL	B	409	-	-	0/4/4/4	-
6	EDO	A	420	-	-	1/1/1/1	-
3	GOL	B	411	-	-	2/4/4/4	-
6	EDO	A	426	-	-	1/1/1/1	-
6	EDO	B	425	-	-	0/1/1/1	-
6	EDO	B	429	-	-	1/1/1/1	-
7	PEG	A	438	-	-	3/4/4/4	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	GOL	B	403	-	-	0/4/4/4	-
3	GOL	B	406	-	-	2/4/4/4	-
3	GOL	A	402[A]	-	-	0/4/4/4	-
6	EDO	A	418	-	-	1/1/1/1	-
6	EDO	A	429	-	-	1/1/1/1	-
6	EDO	B	417	-	-	0/1/1/1	-
7	PEG	B	431[B]	-	-	3/4/4/4	-
6	EDO	B	424	-	-	1/1/1/1	-
6	EDO	A	430	-	-	1/1/1/1	-
7	PEG	A	437[B]	-	-	3/4/4/4	-
7	PEG	A	439	-	-	2/4/4/4	-
7	PEG	B	432	-	-	3/4/4/4	-
3	GOL	A	407[B]	-	-	4/4/4/4	-
6	EDO	A	423	-	-	1/1/1/1	-
3	GOL	B	407	-	-	2/4/4/4	-
6	EDO	A	433	-	-	1/1/1/1	-
6	EDO	A	419	-	-	0/1/1/1	-
7	PEG	B	433	-	-	0/4/4/4	-
3	GOL	A	413	-	-	4/4/4/4	-
2	W88	B	401[A]	-	-	8/15/15/15	0/3/3/3
7	PEG	A	440	-	-	3/4/4/4	-
3	GOL	A	402[B]	-	-	0/4/4/4	-
3	GOL	A	408	-	-	0/4/4/4	-
3	GOL	B	410	-	-	2/4/4/4	-
3	GOL	B	402	-	-	2/4/4/4	-
6	EDO	B	416	-	-	0/1/1/1	-
6	EDO	A	425	-	-	0/1/1/1	-
3	GOL	A	404	-	-	0/4/4/4	-
7	PEG	A	436	-	-	2/4/4/4	-
5	FMN	A	417	-	-	1/18/18/18	0/3/3/3
5	FMN	B	415	-	-	1/18/18/18	0/3/3/3
6	EDO	B	430	-	-	1/1/1/1	-
3	GOL	A	406	-	-	0/4/4/4	-
3	GOL	B	404[A]	-	-	0/4/4/4	-
6	EDO	A	421	-	-	1/1/1/1	-
3	GOL	B	405	-	-	1/4/4/4	-
3	GOL	B	412	-	-	2/4/4/4	-
6	EDO	A	422	-	-	1/1/1/1	-
6	EDO	A	424	-	-	1/1/1/1	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	W88	B	401[B]	-	-	3/15/15/15	0/3/3/3
3	GOL	A	414	-	-	2/4/4/4	-
6	EDO	B	421	-	-	1/1/1/1	-
3	GOL	A	410	-	-	1/4/4/4	-
6	EDO	B	420	-	-	0/1/1/1	-
6	EDO	B	426	-	-	0/1/1/1	-
6	EDO	B	427	-	-	1/1/1/1	-
3	GOL	A	403	-	-	0/4/4/4	-
3	GOL	A	412	-	-	0/4/4/4	-
3	GOL	B	404[B]	-	-	4/4/4/4	-
6	EDO	A	434	-	-	1/1/1/1	-
6	EDO	A	431	-	-	0/1/1/1	-
6	EDO	B	422	-	-	1/1/1/1	-
6	EDO	A	432	-	-	1/1/1/1	-
6	EDO	B	418	-	-	1/1/1/1	-
6	EDO	B	419	-	-	1/1/1/1	-
6	EDO	A	428	-	-	0/1/1/1	-
2	W88	A	401	-	-	4/15/15/15	0/3/3/3
6	EDO	A	427	-	-	1/1/1/1	-
3	GOL	A	411	-	-	4/4/4/4	-
3	GOL	A	405	-	-	3/4/4/4	-
6	EDO	B	423	-	-	0/1/1/1	-
3	GOL	A	409	-	-	1/4/4/4	-

All (36) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	401[A]	W88	CAV-CAS	-6.10	1.36	1.49
5	A	417	FMN	C4-N3	-4.79	1.29	1.38
2	A	401	W88	CAL-CAV	4.16	1.44	1.37
5	B	415	FMN	C4-N3	-3.81	1.31	1.38
2	B	401[B]	W88	CAV-CAS	-3.60	1.41	1.49
2	B	401[B]	W88	CAO-CAU	-3.45	1.41	1.51
8	A	441	NCO	CO-N3	3.41	2.08	1.96
2	A	401	W88	CAV-CAS	-3.36	1.42	1.49
2	B	401[A]	W88	CAO-CAU	-3.25	1.42	1.51
8	A	441	NCO	CO-N5	3.18	2.08	1.96
5	A	417	FMN	O4-C4	3.01	1.29	1.23
2	A	401	W88	CAO-CAU	-3.01	1.43	1.51
2	B	401[B]	W88	OAE-CAS	-2.94	1.21	1.30
2	B	401[B]	W88	CAP-CAW	-2.90	1.43	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	A	441	NCO	CO-N6	2.90	2.07	1.96
2	A	401	W88	CAJ-CAH	2.77	1.42	1.36
2	A	401	W88	CAI-CAG	2.61	1.42	1.36
5	B	415	FMN	C8M-C8	-2.59	1.45	1.51
2	B	401[A]	W88	CAP-CAW	-2.53	1.44	1.51
5	B	415	FMN	C6-C5A	-2.50	1.36	1.40
8	A	441	NCO	CO-N4	2.45	2.05	1.96
3	B	403	GOL	O2-C2	-2.35	1.36	1.43
8	A	441	NCO	CO-N2	2.31	2.05	1.96
3	A	405	GOL	C3-C2	2.26	1.61	1.51
2	B	401[B]	W88	CAJ-CAH	2.25	1.41	1.36
2	B	401[A]	W88	CAL-CAV	2.24	1.41	1.37
8	A	441	NCO	CO-N1	2.15	2.04	1.96
5	B	415	FMN	O4-C4	2.13	1.27	1.23
2	B	401[A]	W88	CAZ-CAW	-2.11	1.41	1.44
5	B	415	FMN	C4A-N5	2.10	1.34	1.30
2	B	401[B]	W88	CAZ-CAW	-2.07	1.41	1.44
2	A	401	W88	CAM-CAO	2.04	1.61	1.52
5	A	417	FMN	C2'-C3'	-2.03	1.49	1.53
7	A	436	PEG	O4-C4	-2.02	1.31	1.42
3	B	408	GOL	C1-C2	2.01	1.60	1.51
5	B	415	FMN	C9-C8	2.00	1.42	1.39

All (44) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
7	A	439	PEG	O2-C2-C1	-3.52	94.60	110.07
5	A	417	FMN	C4-C4A-N5	3.51	123.22	118.23
7	A	437[A]	PEG	C3-O2-C2	3.51	128.48	113.29
3	A	405	GOL	O3-C3-C2	3.34	126.20	110.20
5	B	415	FMN	C5A-C6-C7	2.95	126.13	120.71
5	A	417	FMN	O4-C4-C4A	-2.94	118.81	126.60
7	A	437[B]	PEG	C3-O2-C2	2.91	125.91	113.29
5	B	415	FMN	C7M-C7-C6	2.77	124.61	119.49
2	B	401[A]	W88	CAV-CAL-CBB	-2.75	116.99	121.24
2	B	401[A]	W88	CAH-CAV-CAS	-2.75	114.98	120.39
2	B	401[A]	W88	CAW-CAZ-NAR	2.68	117.69	115.69
5	A	417	FMN	C4A-C4-N3	2.66	119.94	113.19
5	B	415	FMN	C6-C7-C8	-2.55	116.02	119.67
6	B	424	EDO	O2-C2-C1	-2.49	93.98	111.91
2	B	401[B]	W88	CAI-CBB-CAL	-2.47	117.67	122.02
5	A	417	FMN	C9A-C5A-N5	-2.45	119.77	122.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	401	W88	CAJ-CAH-CAV	-2.44	118.03	120.79
3	A	410	GOL	C3-C2-C1	-2.44	102.20	111.70
2	B	401[A]	W88	CAH-CAV-CAL	2.42	122.11	119.23
2	B	401[B]	W88	CAW-CAZ-NAR	2.42	117.50	115.69
3	A	402[B]	GOL	C3-C2-C1	2.41	121.08	111.70
2	B	401[B]	W88	CAN-CAM-CAO	-2.38	104.49	113.76
5	A	417	FMN	C7M-C7-C6	2.38	123.89	119.49
5	A	417	FMN	C4-C4A-C10	-2.37	112.81	116.79
7	B	432	PEG	O2-C2-C1	2.32	120.27	110.07
2	A	401	W88	OAB-CAT-CAX	-2.30	116.05	120.13
7	A	436	PEG	O2-C3-C4	-2.28	100.03	110.07
7	B	432	PEG	O1-C1-C2	2.28	125.01	111.81
2	A	401	W88	NAR-CAY-NAQ	2.27	119.44	115.80
2	A	401	W88	OAE-CAS-CAV	2.25	120.69	114.85
2	B	401[A]	W88	OAE-CAS-CAV	2.23	120.64	114.85
2	B	401[B]	W88	OAE-CAS-OAA	-2.21	118.45	123.35
3	A	406	GOL	O2-C2-C1	2.19	118.78	109.12
3	B	410	GOL	O1-C1-C2	-2.19	99.71	110.20
3	B	405	GOL	O1-C1-C2	2.15	120.50	110.20
2	B	401[A]	W88	OAA-CAS-CAV	-2.14	115.74	121.45
3	A	406	GOL	O2-C2-C3	-2.10	99.87	109.12
3	A	409	GOL	O3-C3-C2	2.10	120.25	110.20
5	B	415	FMN	O2-C2-N1	-2.08	118.39	121.83
7	A	436	PEG	O1-C1-C2	2.07	123.81	111.81
2	A	401	W88	CAZ-NAR-CAY	-2.05	123.38	126.34
3	A	412	GOL	O2-C2-C1	2.04	118.09	109.12
2	B	401[A]	W88	CAT-CAX-CAW	2.01	124.64	122.74
5	B	415	FMN	C9A-C5A-N5	-2.00	120.25	122.43

There are no chirality outliers.

All (106) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	401	W88	OAF-CAT-CAX-NAQ
2	B	401[A]	W88	OAF-CAT-CAX-NAQ
2	B	401[B]	W88	OAF-CAT-CAX-NAQ
3	A	405	GOL	O1-C1-C2-C3
3	A	405	GOL	C1-C2-C3-O3
3	A	407[B]	GOL	O1-C1-C2-C3
3	A	407[B]	GOL	C1-C2-C3-O3
3	A	411	GOL	O1-C1-C2-C3
3	A	411	GOL	C1-C2-C3-O3

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Mol	Chain	Res	Type	Atoms
3	A	411	GOL	O2-C2-C3-O3
3	A	414	GOL	C1-C2-C3-O3
3	A	414	GOL	O2-C2-C3-O3
3	B	404[B]	GOL	O1-C1-C2-C3
3	B	404[B]	GOL	C1-C2-C3-O3
3	B	407	GOL	O1-C1-C2-O2
3	B	407	GOL	O1-C1-C2-C3
3	B	408	GOL	C1-C2-C3-O3
3	B	410	GOL	O1-C1-C2-O2
3	B	410	GOL	O1-C1-C2-C3
3	B	412	GOL	O1-C1-C2-C3
2	B	401[A]	W88	OAE-CAS-CAV-CAL
2	B	401[A]	W88	OAA-CAS-CAV-CAH
2	B	401[A]	W88	OAA-CAS-CAV-CAL
2	B	401[A]	W88	OAE-CAS-CAV-CAH
7	A	436	PEG	C4-C3-O2-C2
7	B	431[B]	PEG	C1-C2-O2-C3
7	A	437[A]	PEG	O1-C1-C2-O2
3	A	405	GOL	O1-C1-C2-O2
3	A	411	GOL	O1-C1-C2-O2
3	B	404[B]	GOL	O2-C2-C3-O3
7	A	436	PEG	O1-C1-C2-O2
7	A	438	PEG	O2-C3-C4-O4
7	A	439	PEG	O2-C3-C4-O4
7	A	437[B]	PEG	O1-C1-C2-O2
7	B	431[B]	PEG	O2-C3-C4-O4
7	A	440	PEG	C4-C3-O2-C2
3	A	413	GOL	O1-C1-C2-C3
3	A	413	GOL	C1-C2-C3-O3
3	B	402	GOL	O1-C1-C2-C3
3	B	406	GOL	O1-C1-C2-C3
3	B	408	GOL	O1-C1-C2-C3
3	A	407[B]	GOL	O2-C2-C3-O3
3	A	413	GOL	O2-C2-C3-O3
3	B	402	GOL	O1-C1-C2-O2
3	B	412	GOL	O1-C1-C2-O2
7	A	439	PEG	O1-C1-C2-O2
6	A	418	EDO	O1-C1-C2-O2
6	A	422	EDO	O1-C1-C2-O2
6	A	427	EDO	O1-C1-C2-O2
6	A	429	EDO	O1-C1-C2-O2
6	B	419	EDO	O1-C1-C2-O2

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Mol	Chain	Res	Type	Atoms
6	B	422	EDO	O1-C1-C2-O2
6	B	427	EDO	O1-C1-C2-O2
6	B	430	EDO	O1-C1-C2-O2
2	B	401[A]	W88	CAN-CAM-CAO-CAU
7	B	432	PEG	O2-C3-C4-O4
7	A	437[A]	PEG	O2-C3-C4-O4
7	A	440	PEG	O2-C3-C4-O4
7	B	431[A]	PEG	O2-C3-C4-O4
7	B	431[A]	PEG	C4-C3-O2-C2
3	A	407[B]	GOL	O1-C1-C2-O2
3	A	413	GOL	O1-C1-C2-O2
3	B	408	GOL	O1-C1-C2-O2
6	A	423	EDO	O1-C1-C2-O2
6	A	433	EDO	O1-C1-C2-O2
6	B	421	EDO	O1-C1-C2-O2
3	B	404[B]	GOL	O1-C1-C2-O2
5	A	417	FMN	C4'-C5'-O5'-P
5	B	415	FMN	C4'-C5'-O5'-P
6	A	432	EDO	O1-C1-C2-O2
6	B	424	EDO	O1-C1-C2-O2
2	A	401	W88	CAN-CAM-CAO-CAU
7	A	437[B]	PEG	O2-C3-C4-O4
7	A	437[B]	PEG	C1-C2-O2-C3
7	A	438	PEG	C4-C3-O2-C2
7	B	431[A]	PEG	C1-C2-O2-C3
3	A	409	GOL	O2-C2-C3-O3
3	B	411	GOL	O1-C1-C2-O2
7	A	438	PEG	C1-C2-O2-C3
7	A	440	PEG	C1-C2-O2-C3
7	A	437[A]	PEG	C4-C3-O2-C2
7	B	431[B]	PEG	C4-C3-O2-C2
6	A	426	EDO	O1-C1-C2-O2
6	A	430	EDO	O1-C1-C2-O2
7	B	432	PEG	C4-C3-O2-C2
3	A	407[A]	GOL	C1-C2-C3-O3
3	B	406	GOL	O1-C1-C2-O2
6	A	420	EDO	O1-C1-C2-O2
3	B	405	GOL	C1-C2-C3-O3
3	A	410	GOL	O1-C1-C2-O2
2	A	401	W88	OAB-CAT-CAX-NAQ
2	B	401[A]	W88	OAB-CAT-CAX-NAQ
2	B	401[B]	W88	OAB-CAT-CAX-NAQ

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Mol	Chain	Res	Type	Atoms
6	A	421	EDO	O1-C1-C2-O2
6	A	435	EDO	O1-C1-C2-O2
6	B	418	EDO	O1-C1-C2-O2
7	A	437[A]	PEG	C1-C2-O2-C3
3	B	408	GOL	O2-C2-C3-O3
3	B	411	GOL	O1-C1-C2-C3
7	B	432	PEG	O1-C1-C2-O2
2	B	401[B]	W88	OAB-CAT-CAX-CAW
6	A	424	EDO	O1-C1-C2-O2
6	A	434	EDO	O1-C1-C2-O2
6	B	429	EDO	O1-C1-C2-O2
2	A	401	W88	CAO-CAM-CAN-CAP
2	B	401[A]	W88	OAB-CAT-CAX-CAW

There are no ring outliers.

53 monomers are involved in 144 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	409	GOL	1	0
4	A	415	CAC	1	0
3	A	402[A]	GOL	1	0
6	A	418	EDO	3	0
6	B	424	EDO	4	0
3	A	413	GOL	1	0
7	A	440	PEG	10	0
6	B	416	EDO	6	0
7	A	436	PEG	3	0
2	B	401[B]	W88	3	0
6	B	421	EDO	2	0
6	B	420	EDO	1	0
6	A	431	EDO	1	0
6	A	420	EDO	3	0
6	B	429	EDO	3	0
4	A	416	CAC	1	0
7	B	433	PEG	6	0
6	A	433	EDO	4	0
2	B	401[A]	W88	5	0
5	A	417	FMN	1	0
8	A	442[B]	NCO	1	0
6	B	422	EDO	1	0
3	B	408	GOL	2	0
7	A	437[B]	PEG	7	0

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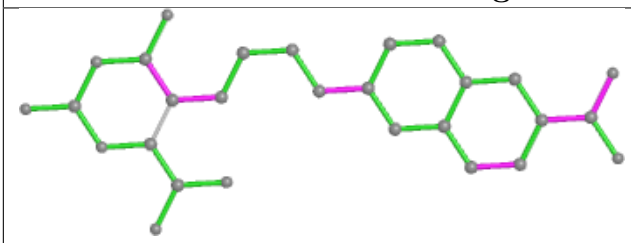
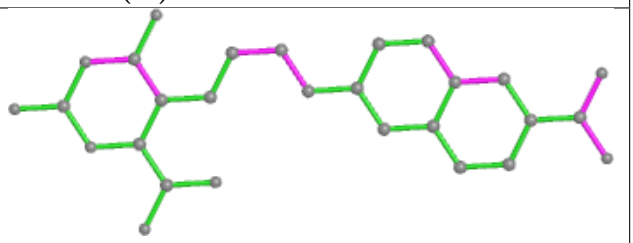
Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	A	439	PEG	4	0
6	A	423	EDO	4	0
8	A	442[A]	NCO	1	0
6	A	425	EDO	1	0
3	A	414	GOL	1	0
6	B	427	EDO	1	0
3	A	403	GOL	1	0
6	A	434	EDO	6	0
6	B	418	EDO	4	0
2	A	401	W88	1	0
3	A	411	GOL	1	0
6	B	423	EDO	1	0
6	A	435	EDO	7	0
7	A	437[A]	PEG	9	0
7	A	438	PEG	12	0
6	A	426	EDO	1	0
6	B	425	EDO	1	0
7	B	431[B]	PEG	3	0
7	B	432	PEG	9	0
3	B	410	GOL	2	0
3	B	402	GOL	2	0
6	B	430	EDO	2	0
3	A	406	GOL	1	0
3	B	412	GOL	5	0
6	A	424	EDO	1	0
6	B	426	EDO	3	0
6	A	432	EDO	1	0
6	B	419	EDO	2	0
6	A	427	EDO	2	0

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

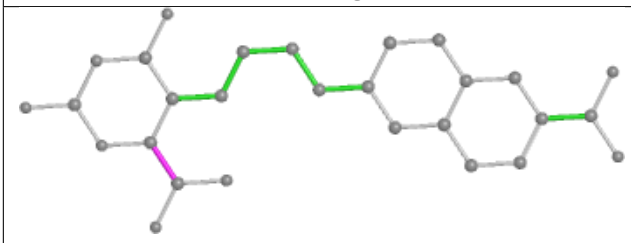
Ligand W88 B 401 (B)



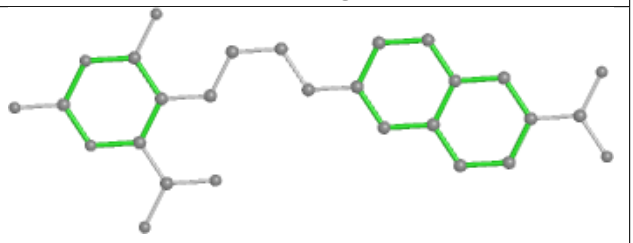
Bond lengths



Bond angles

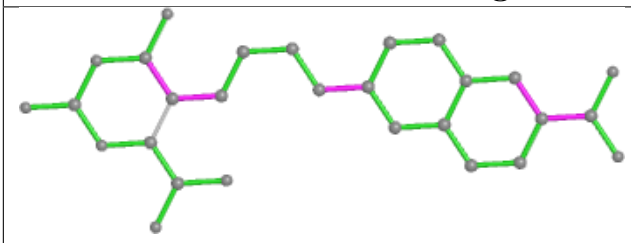


Torsions

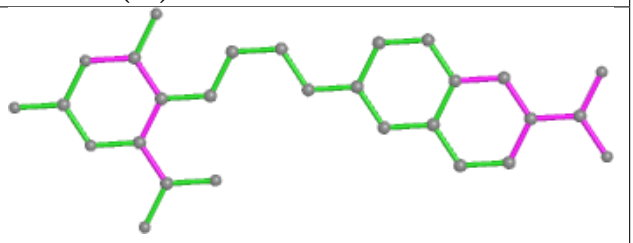


Rings

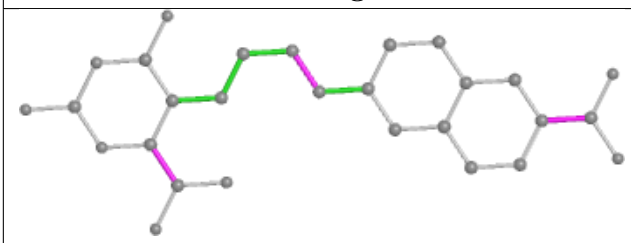
Ligand W88 B 401 (A)



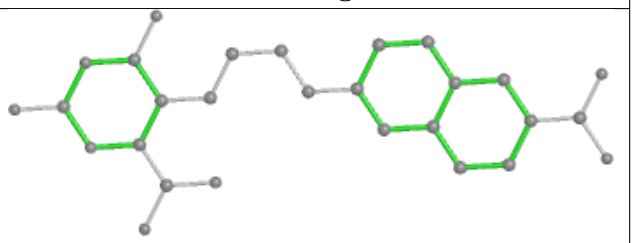
Bond lengths



Bond angles

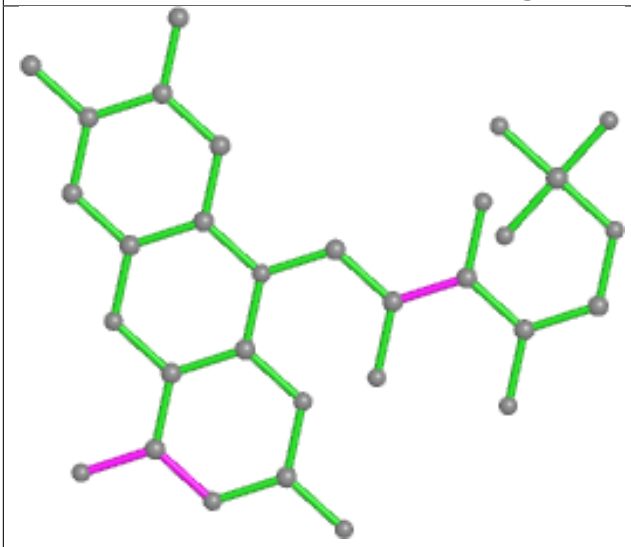


Torsions

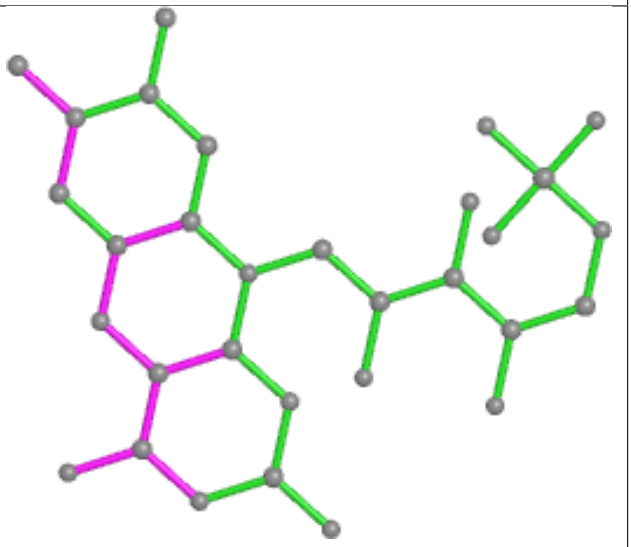


Rings

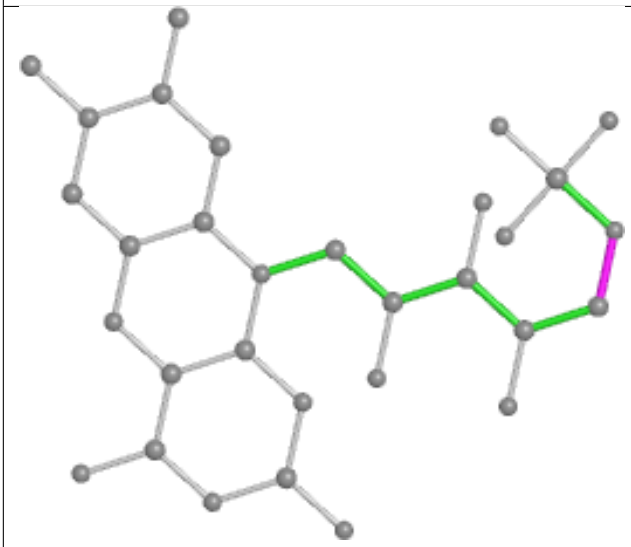
Ligand FMN A 417



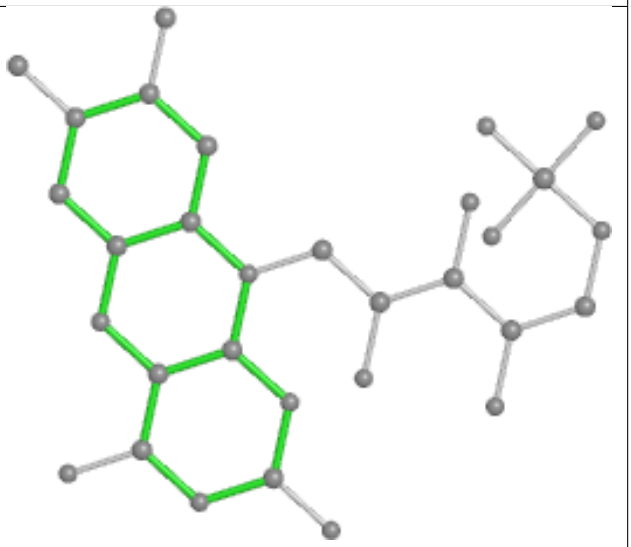
Bond lengths



Bond angles

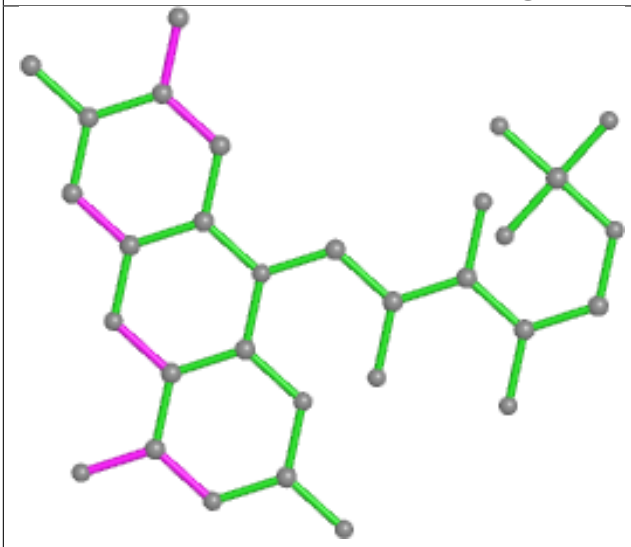


Torsions

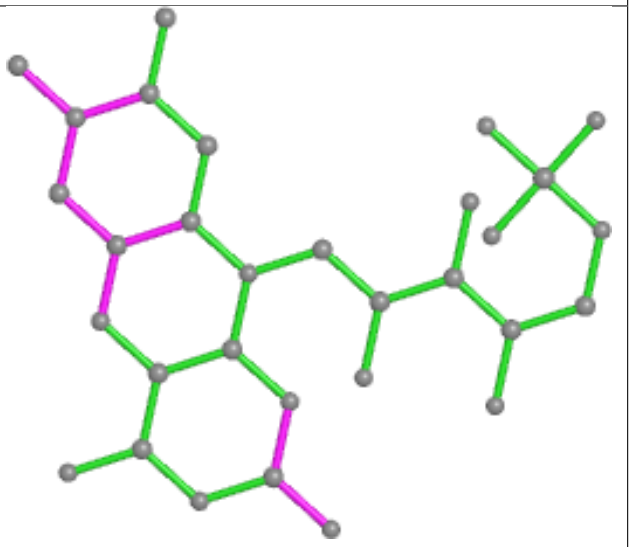


Rings

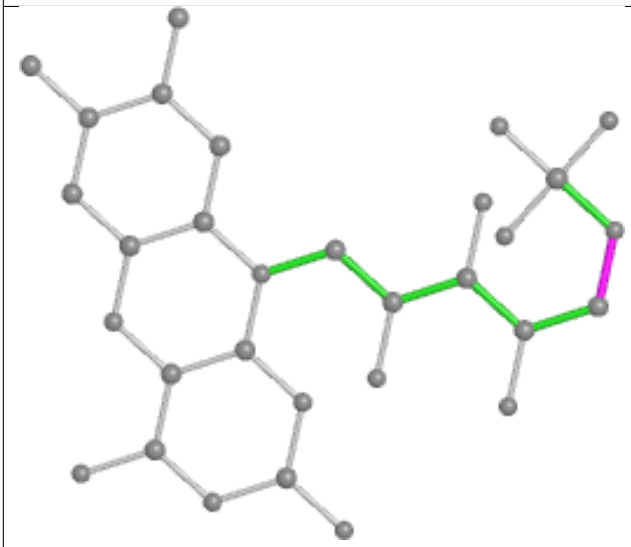
Ligand FMN B 415



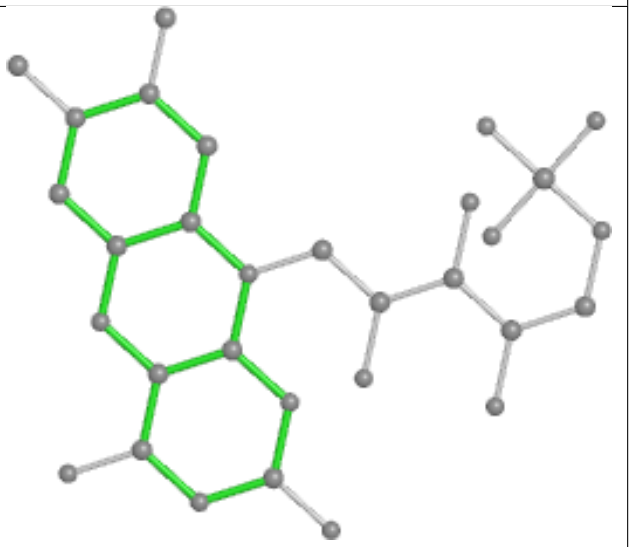
Bond lengths



Bond angles

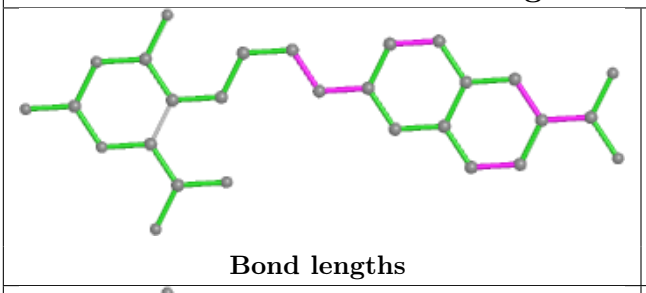


Torsions

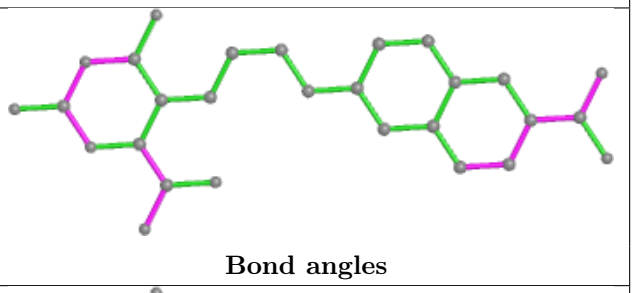


Rings

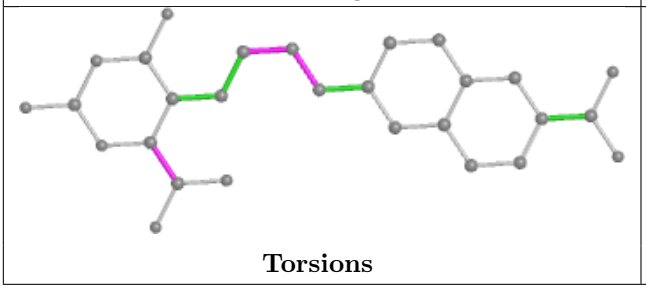
Ligand W88 A 401



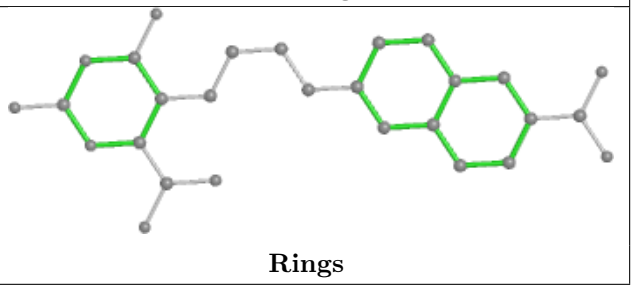
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	A	2

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A	130[B]:CYS	C	131:PRO	N	1.73
1	A	130[A]:CYS	C	131:PRO	N	1.69

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	314/314 (100%)	-0.14	9 (2%)	51	50	4, 9, 26, 54	0
1	B	314/314 (100%)	-0.30	5 (1%)	72	71	4, 8, 20, 45	0
All	All	628/628 (100%)	-0.22	14 (2%)	62	61	4, 8, 23, 54	0

All (14) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	131	PRO	7.4
1	A	133	VAL	7.2
1	A	-1	SER	5.7
1	A	135	GLY	5.1
1	A	134	PRO	5.1
1	B	130[A]	CYS	4.7
1	A	130[A]	CYS	4.6
1	B	-1	SER	3.6
1	A	132	ASN	3.0
1	B	312	GLU	2.8
1	B	131	PRO	2.8
1	B	134	PRO	2.6
1	A	312[A]	GLU	2.4
1	A	0	MET	2.0

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

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

6.3 Carbohydrates

There are no monosaccharides in this entry.

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	EDO	A	430	4/4	0.17	0.30	63,68,70,72	0
6	EDO	A	419	4/4	0.41	0.18	57,59,64,65	0
6	EDO	A	422	4/4	0.50	0.31	39,56,57,59	0
3	GOL	A	411	6/6	0.52	0.23	46,61,66,74	0
6	EDO	A	428	4/4	0.58	0.17	48,50,51,56	0
3	GOL	B	411	6/6	0.59	0.26	51,52,54,55	0
6	EDO	B	420	4/4	0.60	0.41	56,61,62,63	0
6	EDO	B	423	4/4	0.62	0.21	39,46,46,49	0
3	GOL	B	408	6/6	0.65	0.18	30,34,38,47	0
3	GOL	A	409	6/6	0.66	0.24	30,34,38,51	0
3	GOL	A	408	6/6	0.67	0.26	46,51,62,64	0
6	EDO	A	425	4/4	0.69	0.26	31,35,41,41	0
6	EDO	A	427	4/4	0.70	0.43	52,53,56,58	0
6	EDO	A	431	4/4	0.70	0.28	40,52,52,58	0
6	EDO	B	428	4/4	0.71	0.25	50,52,54,56	0
7	PEG	A	439	7/7	0.71	0.37	24,31,37,38	0
7	PEG	B	431[A]	7/7	0.71	0.53	61,80,102,108	7
7	PEG	B	431[B]	7/7	0.71	0.53	23,26,27,29	7
6	EDO	A	426	4/4	0.73	0.30	54,57,60,61	0
6	EDO	A	429	4/4	0.74	0.16	36,39,40,44	0
6	EDO	A	435	4/4	0.74	0.42	33,37,38,44	0
4	CAC	B	414	5/5	0.75	0.25	142,150,164,166	0
7	PEG	A	437[B]	7/7	0.77	0.23	20,21,26,27	7
3	GOL	A	414	6/6	0.77	0.24	39,50,52,56	0
6	EDO	B	430	4/4	0.77	0.31	35,37,39,44	0
7	PEG	A	437[A]	7/7	0.77	0.23	21,21,28,28	7
3	GOL	A	413	6/6	0.79	0.18	29,37,39,40	0
3	GOL	B	402	6/6	0.79	0.23	23,33,39,39	0
6	EDO	B	421	4/4	0.80	0.18	37,38,45,47	0
6	EDO	B	417	4/4	0.81	0.18	32,35,35,41	0
6	EDO	B	419	4/4	0.81	0.21	27,31,34,35	0
3	GOL	A	407[B]	6/6	0.81	0.20	20,28,29,30	6
3	GOL	A	407[A]	6/6	0.81	0.20	37,41,42,48	6
3	GOL	B	404[B]	6/6	0.82	0.18	21,26,27,28	6
6	EDO	A	432	4/4	0.82	0.17	34,40,41,42	0
3	GOL	A	403	6/6	0.82	0.12	23,23,25,29	0
3	GOL	A	406	6/6	0.82	0.18	21,27,27,30	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	GOL	B	404[A]	6/6	0.82	0.18	16,18,21,25	6
6	EDO	B	429	4/4	0.83	0.22	33,40,45,55	0
7	PEG	B	432	7/7	0.83	0.23	22,26,30,34	0
3	GOL	B	410	6/6	0.84	0.29	26,30,33,37	0
6	EDO	B	426	4/4	0.84	0.22	26,34,35,39	0
7	PEG	A	440	7/7	0.84	0.28	27,33,36,43	0
6	EDO	A	424	4/4	0.85	0.21	33,34,40,42	0
6	EDO	A	418	4/4	0.85	0.26	17,24,29,30	0
6	EDO	B	422	4/4	0.85	0.29	27,32,34,35	0
3	GOL	B	405	6/6	0.85	0.17	17,22,23,26	0
3	GOL	B	407	6/6	0.85	0.18	25,40,41,45	0
6	EDO	B	416	4/4	0.86	0.21	18,23,24,35	0
3	GOL	A	412	6/6	0.86	0.23	29,40,43,44	0
6	EDO	A	423	4/4	0.86	0.25	20,23,27,38	0
6	EDO	A	433	4/4	0.87	0.13	20,25,30,36	0
6	EDO	A	434	4/4	0.88	0.25	25,25,26,29	0
6	EDO	B	427	4/4	0.88	0.23	20,28,34,38	0
6	EDO	B	425	4/4	0.88	0.21	24,29,30,30	0
3	GOL	A	410	6/6	0.89	0.13	24,27,28,41	0
3	GOL	B	403	6/6	0.89	0.13	22,24,26,26	0
3	GOL	B	406	6/6	0.90	0.17	29,40,44,54	0
3	GOL	B	409	6/6	0.90	0.34	22,37,39,40	0
7	PEG	A	438	7/7	0.90	0.46	29,32,34,34	0
3	GOL	B	412	6/6	0.90	0.30	22,32,36,49	0
6	EDO	A	421	4/4	0.91	0.14	29,30,34,38	0
4	CAC	A	415	5/5	0.92	0.27	11,17,21,22	0
3	GOL	A	405	6/6	0.92	0.12	17,21,32,32	0
6	EDO	A	420	4/4	0.92	0.24	24,29,30,31	0
7	PEG	B	433	7/7	0.92	0.33	19,29,39,46	0
7	PEG	A	436	7/7	0.93	0.16	13,25,28,33	0
2	W88	A	401	28/28	0.94	0.14	7,22,61,70	0
4	CAC	B	413	5/5	0.95	0.23	12,16,18,20	0
2	W88	B	401[B]	28/28	0.95	0.15	6,14,26,29	28
6	EDO	B	418	4/4	0.95	0.18	19,20,22,22	0
2	W88	B	401[A]	28/28	0.95	0.15	6,13,34,36	28
3	GOL	A	404	6/6	0.95	0.07	16,18,19,22	0
4	CAC	A	416	5/5	0.95	0.33	30,34,39,43	0
8	NCO	A	442[A]	7/7	0.95	0.16	16,17,19,21	7
8	NCO	A	442[B]	7/7	0.95	0.16	15,16,18,20	7
6	EDO	B	424	4/4	0.96	0.22	16,22,22,27	0
3	GOL	A	402[A]	6/6	0.97	0.07	9,9,10,10	6
3	GOL	A	402[B]	6/6	0.97	0.07	9,10,11,12	6

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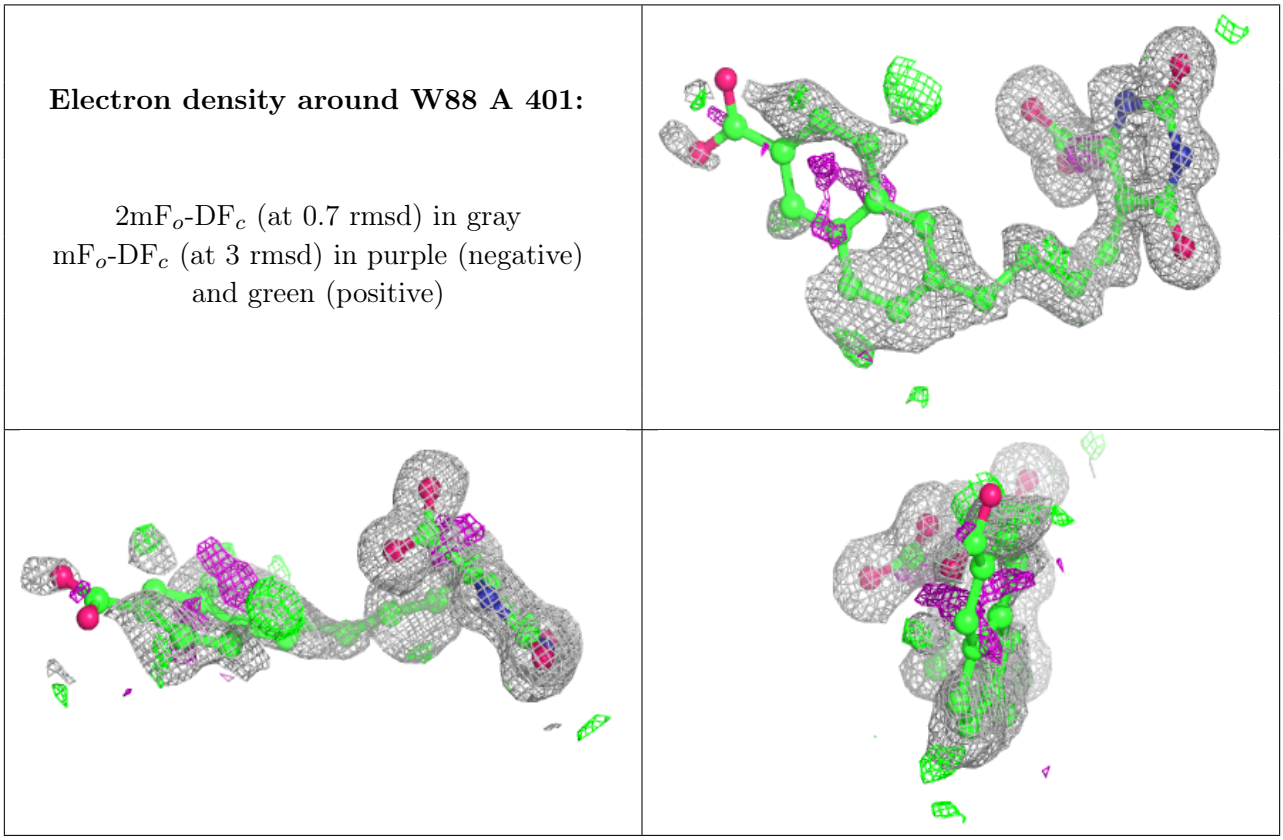
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
5	FMN	B	415	31/31	0.98	0.07	3,4,5,6	0
5	FMN	A	417	31/31	0.99	0.07	3,4,6,6	0
8	NCO	A	441	7/7	0.99	0.09	6,6,7,7	0

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.

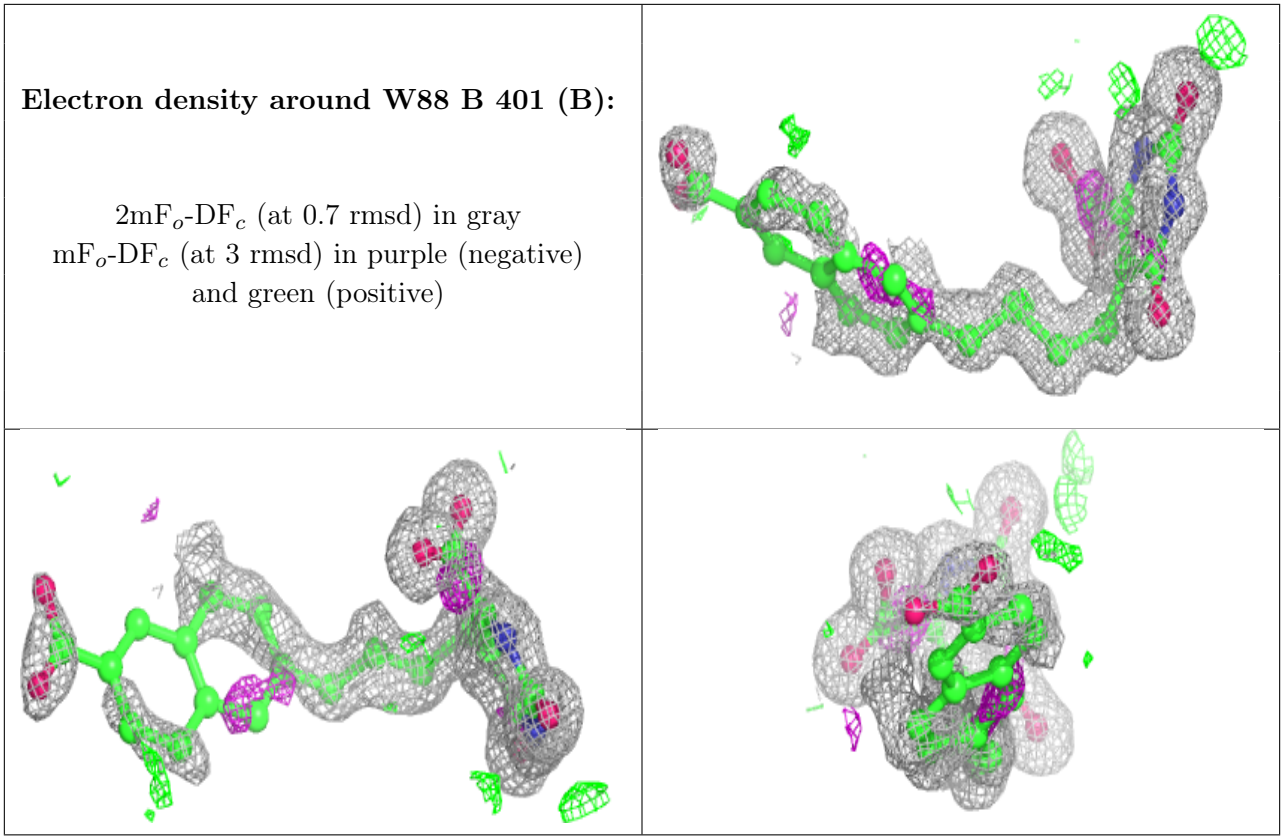
Electron density around W88 A 401:

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



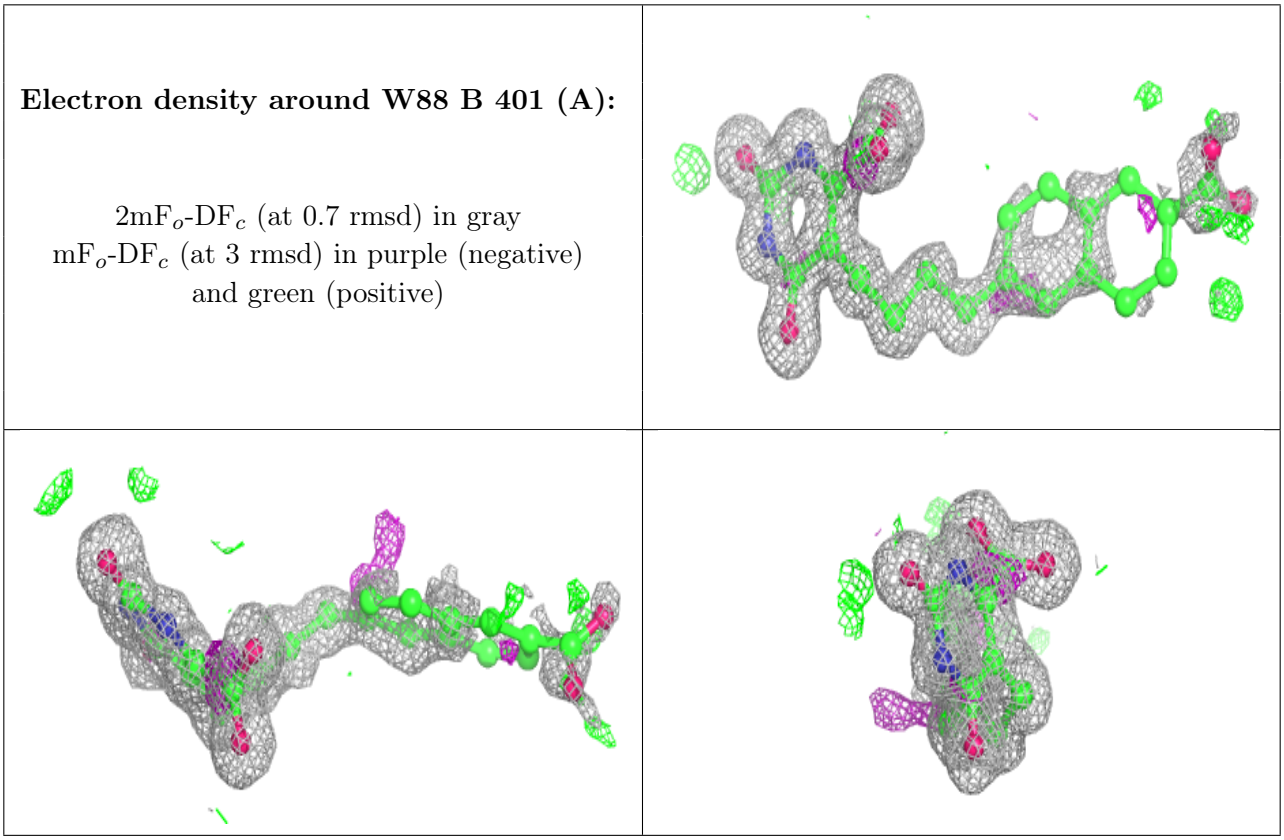
Electron density around W88 B 401 (B):

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



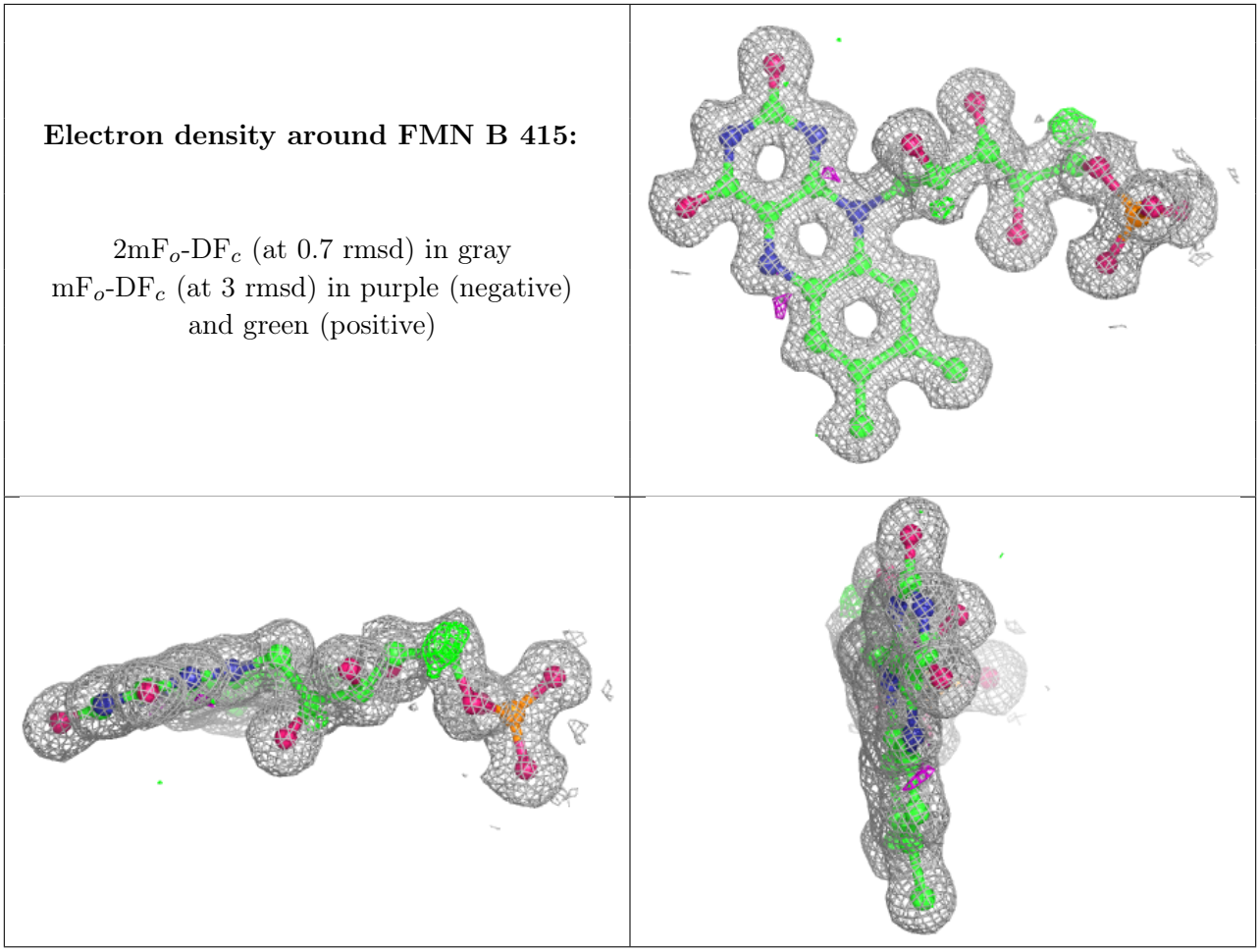
Electron density around W88 B 401 (A):

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



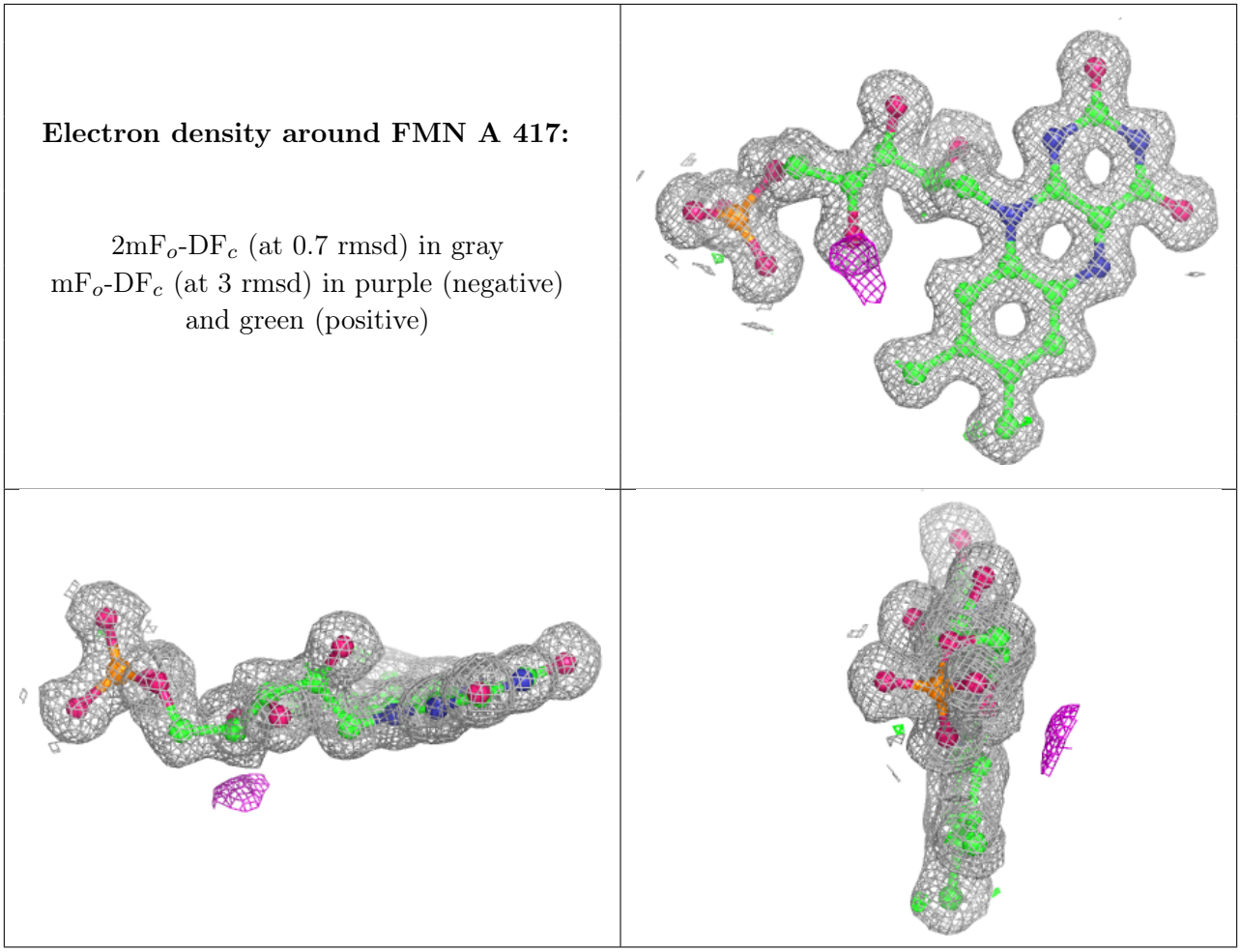
Electron density around FMN B 415:

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



Electron density around FMN A 417:

$2mF_o$-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.