Full wwPDB X-ray Structure Validation Report (i)

Jun 16, 2026 – 11:18 am BST

PDB ID	:	9SRP / pdb_00009srp
Title	:	Structure of the Diels-Alderase ChlE3 in complex with cofactor FAD
Authors	:	Manzo-Ruiz, M.B.; Back, C.R.; Race, P.R.
Deposited on	:	2025-09-24
Resolution	:	1.84 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:

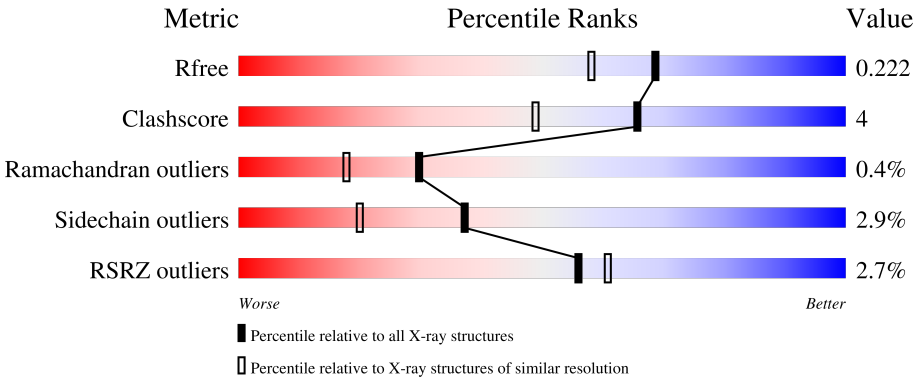
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 1.84 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	1296 (1.84-1.84)
Clashscore	190562	1329 (1.84-1.84)
Ramachandran outliers	187476	1318 (1.84-1.84)
Sidechain outliers	187428	1318 (1.84-1.84)
RSRZ outliers	180081	1296 (1.84-1.84)

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	506	2% 82% 13%
1	B	506	2% 82% 13%
1	C	506	3% 82% 10%
1	D	506	3% 79% 11% 8%

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 29279 atoms, of which 14268 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 ChlE3.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	C	487	Total	C	H	N	O	S	90	0	0
			7141	2243	3550	666	675	7			
1	D	468	Total	C	H	N	O	S	83	0	0
			6901	2168	3434	646	646	7			
1	B	491	Total	C	H	N	O	S	92	1	0
			7197	2259	3578	671	682	7			
1	A	491	Total	C	H	N	O	S	91	1	0
			7202	2261	3582	671	681	7			

There are 32 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	499	LEU	-	expression tag	UNP Q0R4M1
C	500	GLU	-	expression tag	UNP Q0R4M1
C	501	HIS	-	expression tag	UNP Q0R4M1
C	502	HIS	-	expression tag	UNP Q0R4M1
C	503	HIS	-	expression tag	UNP Q0R4M1
C	504	HIS	-	expression tag	UNP Q0R4M1
C	505	HIS	-	expression tag	UNP Q0R4M1
C	506	HIS	-	expression tag	UNP Q0R4M1
D	499	LEU	-	expression tag	UNP Q0R4M1
D	500	GLU	-	expression tag	UNP Q0R4M1
D	501	HIS	-	expression tag	UNP Q0R4M1
D	502	HIS	-	expression tag	UNP Q0R4M1
D	503	HIS	-	expression tag	UNP Q0R4M1
D	504	HIS	-	expression tag	UNP Q0R4M1
D	505	HIS	-	expression tag	UNP Q0R4M1
D	506	HIS	-	expression tag	UNP Q0R4M1
B	499	LEU	-	expression tag	UNP Q0R4M1
B	500	GLU	-	expression tag	UNP Q0R4M1
B	501	HIS	-	expression tag	UNP Q0R4M1
B	502	HIS	-	expression tag	UNP Q0R4M1
B	503	HIS	-	expression tag	UNP Q0R4M1

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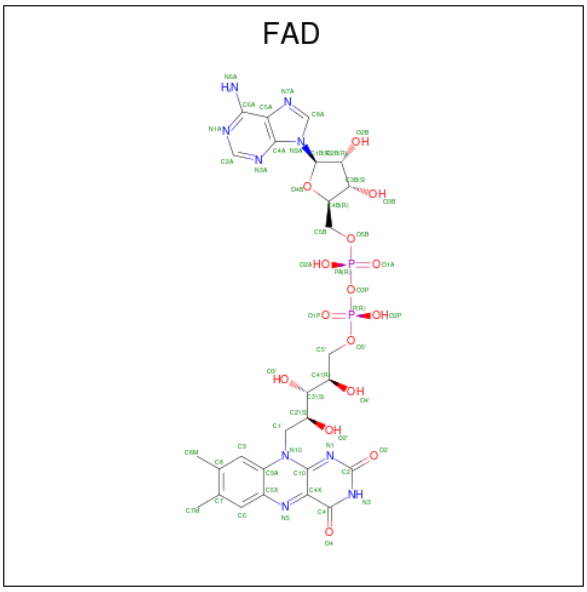
Chain	Residue	Modelled	Actual	Comment	Reference
B	504	HIS	-	expression tag	UNP Q0R4M1
B	505	HIS	-	expression tag	UNP Q0R4M1
B	506	HIS	-	expression tag	UNP Q0R4M1
A	499	LEU	-	expression tag	UNP Q0R4M1
A	500	GLU	-	expression tag	UNP Q0R4M1
A	501	HIS	-	expression tag	UNP Q0R4M1
A	502	HIS	-	expression tag	UNP Q0R4M1
A	503	HIS	-	expression tag	UNP Q0R4M1
A	504	HIS	-	expression tag	UNP Q0R4M1
A	505	HIS	-	expression tag	UNP Q0R4M1
A	506	HIS	-	expression tag	UNP Q0R4M1

- Molecule 2 is FLAVIN-ADENINE DINUCLEOTIDE (CCD ID: 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	C	1	Total	C	H	N	O	P	11	0
			84	27	31	9	15	2		
2	D	1	Total	C	H	N	O	P	11	0
			84	27	31	9	15	2		
2	B	1	Total	C	H	N	O	P	11	0
			84	27	31	9	15	2		
2	A	1	Total	C	H	N	O	P	11	0
			84	27	31	9	15	2		

- Molecule 3 is water.

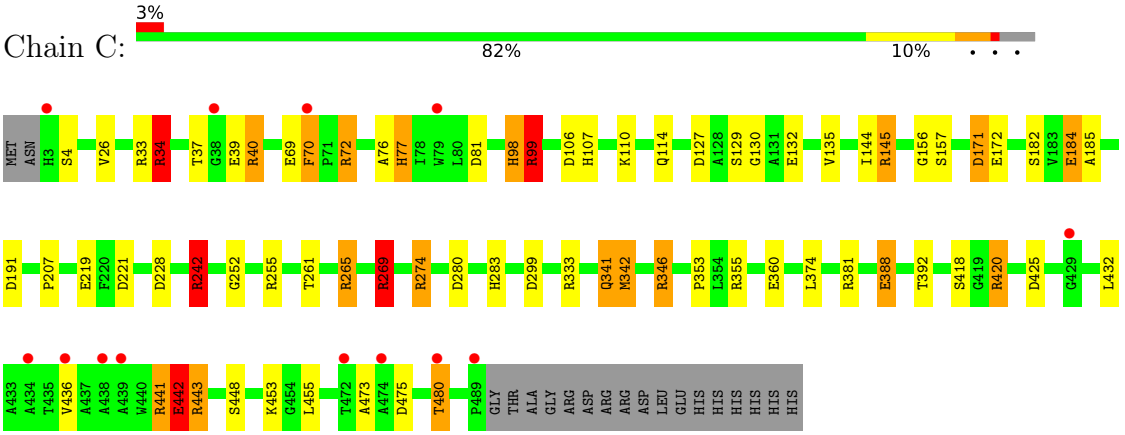
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	C	173	Total O 173 173	0	0
3	D	53	Total O 53 53	0	0
3	B	114	Total O 114 114	0	0
3	A	162	Total O 162 162	0	0

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.

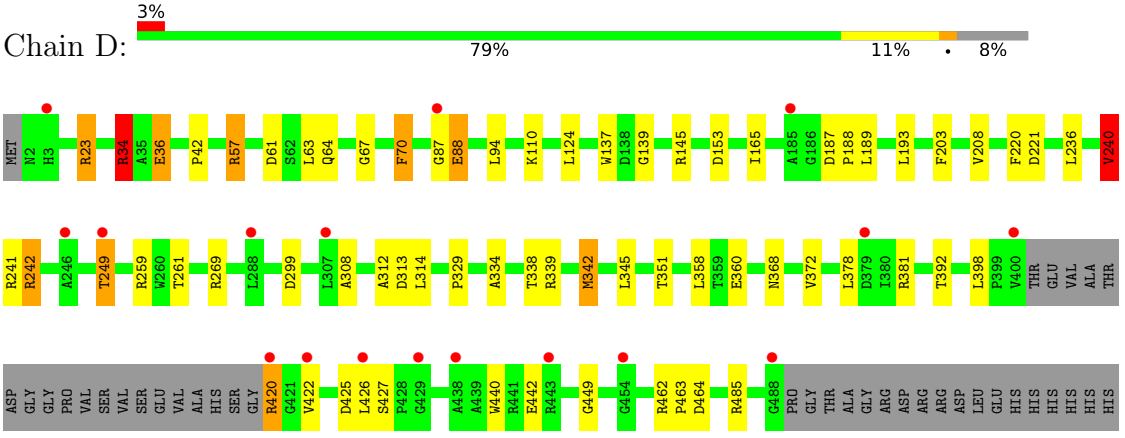
• Molecule 1: ChlE3

Chain C:



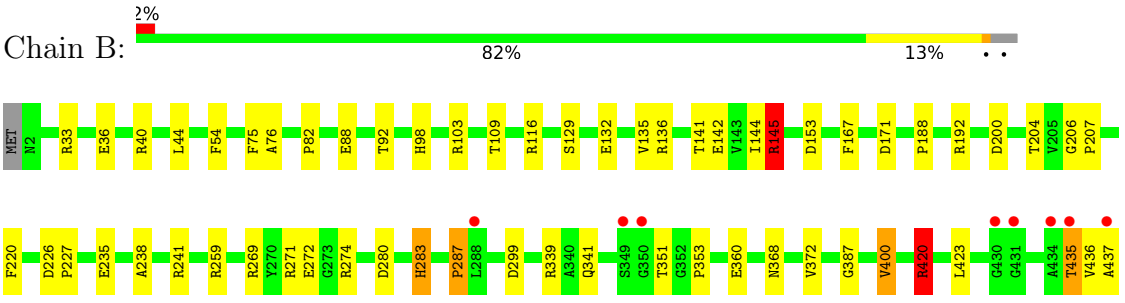
• Molecule 1: ChlE3

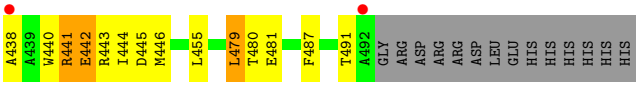
Chain D:



• Molecule 1: ChlE3

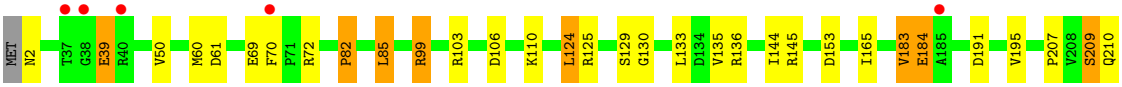
Chain B:

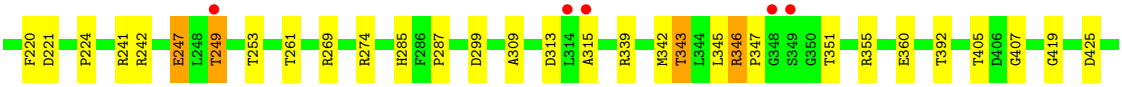




- Molecule 1: ChlE3

Chain A:





4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	191.87Å 69.76Å 188.72Å 90.00° 109.37° 90.00°	Depositor
Resolution (Å)	90.67 – 1.84 90.67 – 1.84	Depositor EDS
% Data completeness (in resolution range)	99.9 (90.67-1.84) 99.4 (90.67-1.84)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.17 (at 1.84Å)	Xtriage
Refinement program	REFMAC 5.8.0425	Depositor
R, R_{free}	0.183 , 0.223 0.183 , 0.222	Depositor DCC
R_{free} test set	10262 reflections (5.02%)	wwPDB-VP
Wilson B-factor (Å^2)	37.6	Xtriage
Anisotropy	0.345	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.37 , 32.9	EDS
L-test for twinning[2]	$< \|L\| > = 0.47$, $< L^2 > = 0.30$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.97	EDS
Total number of atoms	29279	wwPDB-VP
Average B, all atoms (Å^2)	54.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.36% 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: FAD

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	1.11	4/3699 (0.1%)	1.54	43/5039 (0.9%)
1	B	0.99	2/3698 (0.1%)	1.46	34/5039 (0.7%)
1	C	1.11	6/3667 (0.2%)	1.56	44/4995 (0.9%)
1	D	0.91	1/3539 (0.0%)	1.45	24/4816 (0.5%)
All	All	1.03	13/14603 (0.1%)	1.50	145/19889 (0.7%)

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	4
1	B	0	6
1	C	0	13
1	D	0	9
All	All	0	32

All (13) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	98	HIS	CG-CD2	10.28	1.47	1.35
1	A	287	PRO	CA-CB	7.35	1.60	1.53
1	C	207	PRO	CA-CB	6.84	1.62	1.53
1	C	355	ARG	NE-CZ	-6.56	1.25	1.33
1	C	98	HIS	CE1-NE2	6.39	1.39	1.32
1	A	129	SER	CA-CB	-6.16	1.44	1.53
1	A	82	PRO	CA-CB	-6.14	1.45	1.54
1	A	285	HIS	ND1-CE1	6.09	1.38	1.32
1	C	346	ARG	NE-CZ	5.92	1.39	1.33
1	B	283	HIS	ND1-CE1	5.84	1.38	1.32

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	129	SER	CA-CB	-5.45	1.45	1.53
1	D	329	PRO	CA-CB	5.23	1.61	1.53
1	C	106	ASP	CG-OD2	5.20	1.35	1.25

All (145) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	342	MET	CG-SD-CE	-15.07	67.75	100.90
1	D	70	PHE	CA-CB-CG	12.15	125.95	113.80
1	C	480	THR	CA-CB-OG1	-9.13	95.90	109.60
1	C	274	ARG	NE-CZ-NH2	8.91	127.22	119.20
1	A	153	ASP	CA-CB-CG	8.79	121.39	112.60
1	C	98	HIS	CA-CB-CG	8.78	122.58	113.80
1	C	299	ASP	CA-CB-CG	8.41	121.01	112.60
1	A	69	GLU	CB-CG-CD	8.34	126.77	112.60
1	B	299	ASP	CA-CB-CG	8.19	120.79	112.60
1	C	26	VAL	CA-C-O	8.06	123.90	119.15
1	B	33	ARG	N-CA-CB	8.00	122.68	110.28
1	B	360	GLU	N-CA-CB	7.92	121.75	109.94
1	A	343	THR	CA-CB-OG1	-7.91	97.74	109.60
1	C	99	ARG	CG-CD-NE	-7.90	94.62	112.00
1	B	287	PRO	N-CA-CB	-7.84	97.32	102.65
1	D	203	PHE	N-CA-CB	-7.77	97.36	110.80
1	C	228	ASP	CB-CA-C	-7.73	94.12	109.67
1	B	400	VAL	N-CA-CB	7.52	120.21	110.13
1	D	360	GLU	N-CA-CB	7.29	120.57	110.01
1	B	167	PHE	CA-CB-CG	7.19	120.99	113.80
1	A	477	THR	CA-CB-OG1	-7.19	98.82	109.60
1	A	261	THR	CA-CB-OG1	-7.14	98.89	109.60
1	C	33	ARG	CG-CD-NE	-7.13	96.31	112.00
1	D	313	ASP	CA-CB-CG	7.08	119.68	112.60
1	A	207	PRO	CA-C-N	-6.96	116.05	123.08
1	A	207	PRO	C-N-CA	-6.96	116.05	123.08
1	A	61	ASP	CA-CB-CG	6.85	119.45	112.60
1	C	106	ASP	CA-CB-CG	6.83	119.43	112.60
1	C	98	HIS	CB-CG-CD2	6.76	139.99	131.20
1	A	103	ARG	N-CA-CB	6.76	120.71	110.30
1	A	191	ASP	CA-CB-CG	6.54	119.14	112.60
1	A	339	ARG	CA-CB-CG	-6.35	101.40	114.10
1	A	443	ARG	CD-NE-CZ	6.34	133.28	124.40
1	D	299	ASP	CA-CB-CG	6.30	118.90	112.60
1	C	360	GLU	N-CA-CB	6.27	119.11	110.01

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	253	THR	CA-CB-OG1	-6.26	100.20	109.60
1	C	274	ARG	NE-CZ-NH1	-6.24	115.26	121.50
1	A	355	ARG	NE-CZ-NH1	-6.24	115.26	121.50
1	A	435	THR	CA-CB-OG1	-6.20	100.29	109.60
1	C	274	ARG	CD-NE-CZ	6.17	133.04	124.40
1	B	351	THR	CA-CB-OG1	-6.16	100.36	109.60
1	C	392	THR	CA-CB-OG1	-6.16	100.36	109.60
1	A	392	THR	CA-CB-OG1	-6.09	100.47	109.60
1	A	481	GLU	N-CA-CB	6.08	119.15	110.16
1	A	165	ILE	CA-C-N	6.07	125.75	119.92
1	A	165	ILE	C-N-CA	6.07	125.75	119.92
1	C	346	ARG	CB-CG-CD	6.07	125.25	111.30
1	A	2	ASN	CA-CB-CG	-6.06	106.54	112.60
1	B	153	ASP	CA-CB-CG	6.06	118.66	112.60
1	C	453	LYS	CB-CA-C	-6.04	100.77	109.84
1	C	261	THR	CA-CB-OG1	-6.04	100.54	109.60
1	C	242	ARG	NE-CZ-NH1	-6.02	115.48	121.50
1	C	127	ASP	CA-CB-CG	6.02	118.62	112.60
1	C	107	HIS	CB-CG-CD2	-5.96	123.46	131.20
1	D	187	ASP	CB-CA-C	5.89	118.82	109.52
1	A	355	ARG	CB-CA-C	5.88	120.55	110.79
1	C	221	ASP	CA-CB-CG	5.87	118.47	112.60
1	B	145	ARG	N-CA-CB	-5.85	101.27	110.69
1	C	98	HIS	CB-CG-ND1	-5.84	113.94	122.70
1	D	351	THR	CA-CB-OG1	-5.76	100.95	109.60
1	A	299	ASP	CA-CB-CG	5.76	118.36	112.60
1	A	50	VAL	N-CA-CB	5.76	117.28	110.55
1	B	445	ASP	CA-CB-CG	5.75	118.36	112.60
1	A	191	ASP	CB-CA-C	-5.75	98.30	110.31
1	A	360	GLU	CB-CA-C	-5.75	101.82	110.90
1	B	274	ARG	N-CA-CB	-5.74	101.66	110.44
1	B	82	PRO	N-CA-CB	-5.74	97.23	103.25
1	A	247	GLU	CB-CA-C	-5.74	99.35	109.62
1	B	142	GLU	N-CA-CB	-5.72	101.29	111.08
1	C	33	ARG	CD-NE-CZ	5.71	132.40	124.40
1	B	420	ARG	CA-CB-CG	-5.70	102.70	114.10
1	B	204	THR	CA-CB-OG1	-5.70	101.06	109.60
1	B	141	THR	CA-CB-OG1	-5.69	101.06	109.60
1	C	70	PHE	CA-CB-CG	-5.69	108.11	113.80
1	C	77	HIS	CA-CB-CG	-5.67	108.13	113.80
1	D	221	ASP	CB-CA-C	-5.66	102.56	111.51
1	B	442	GLU	CB-CG-CD	5.66	122.22	112.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	220	PHE	CA-CB-CG	-5.66	108.14	113.80
1	B	36	GLU	N-CA-CB	-5.65	101.02	111.53
1	C	69	GLU	CG-CD-OE1	-5.63	105.44	118.40
1	C	265	ARG	NE-CZ-NH2	-5.63	114.13	119.20
1	A	195	VAL	N-CA-CB	-5.63	104.36	111.46
1	A	342	MET	CG-SD-CE	-5.62	88.55	100.90
1	C	34	ARG	CD-NE-CZ	5.59	132.23	124.40
1	B	92	THR	CA-CB-OG1	-5.59	101.22	109.60
1	A	242	ARG	CB-CA-C	5.58	120.34	110.85
1	B	171	ASP	CA-CB-CG	5.57	118.17	112.60
1	C	130	GLY	CA-C-O	-5.57	116.34	121.63
1	D	42	PRO	N-CA-C	5.56	120.81	113.86
1	A	106	ASP	CA-CB-CG	5.56	118.16	112.60
1	C	269	ARG	CD-NE-CZ	5.56	132.18	124.40
1	C	81	ASP	CA-C-O	5.55	124.70	119.59
1	B	88	GLU	CB-CG-CD	5.55	122.04	112.60
1	B	98	HIS	CA-CB-CG	5.51	119.31	113.80
1	C	442	GLU	CB-CG-CD	5.50	121.96	112.60
1	C	110	LYS	N-CA-CB	5.49	118.19	110.12
1	B	40	ARG	NE-CZ-NH1	-5.49	116.01	121.50
1	C	443	ARG	NE-CZ-NH2	5.45	124.11	119.20
1	C	4	SER	N-CA-C	-5.43	105.78	112.90
1	C	69	GLU	CA-C-O	-5.43	115.21	121.19
1	C	72	ARG	CD-NE-CZ	5.43	132.00	124.40
1	B	491	THR	CA-CB-OG1	-5.41	101.48	109.60
1	C	40	ARG	CB-CA-C	5.41	118.10	109.02
1	A	99	ARG	N-CA-CB	5.40	118.15	110.16
1	D	208	VAL	N-CA-C	-5.38	106.56	111.67
1	A	39	GLU	CB-CA-C	-5.37	99.74	110.42
1	A	360	GLU	N-CA-CB	5.37	117.85	110.07
1	B	145	ARG	CB-CA-C	5.34	118.99	109.38
1	C	191	ASP	CA-CB-CG	5.33	117.93	112.60
1	B	109	THR	CA-CB-OG1	-5.32	101.62	109.60
1	A	355	ARG	CG-CD-NE	-5.32	100.30	112.00
1	A	452	VAL	N-CA-CB	-5.31	104.03	111.25
1	D	342	MET	CG-SD-CE	5.31	112.58	100.90
1	A	346	ARG	NE-CZ-NH2	5.30	123.97	119.20
1	B	54	PHE	CA-CB-CG	5.30	119.10	113.80
1	B	259	ARG	CD-NE-CZ	5.29	131.80	124.40
1	B	480	THR	CA-CB-OG1	-5.28	101.68	109.60
1	D	165	ILE	CA-C-N	5.28	125.69	120.31
1	D	165	ILE	C-N-CA	5.28	125.69	120.31

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	200	ASP	CB-CA-C	5.24	118.76	109.65
1	A	249	THR	CA-CB-OG1	-5.23	101.75	109.60
1	A	209	SER	N-CA-C	-5.22	101.50	108.86
1	C	269	ARG	CG-CD-NE	-5.21	100.54	112.00
1	C	171	ASP	O-C-N	-5.19	117.14	123.16
1	B	136	ARG	CG-CD-NE	-5.16	100.64	112.00
1	D	378	LEU	CA-C-N	-5.16	114.95	123.05
1	D	378	LEU	C-N-CA	-5.16	114.95	123.05
1	D	392	THR	CA-CB-OG1	-5.14	101.89	109.60
1	D	464	ASP	CA-CB-CG	5.13	117.73	112.60
1	A	221	ASP	CA-CB-CG	5.11	117.71	112.60
1	A	224	PRO	CA-C-N	5.10	125.74	120.03
1	A	224	PRO	C-N-CA	5.10	125.74	120.03
1	B	235	GLU	CB-CG-CD	5.08	121.24	112.60
1	D	220	PHE	CA-CB-CG	-5.08	108.72	113.80
1	D	249	THR	CA-CB-OG1	-5.06	102.01	109.60
1	A	436	VAL	CA-C-O	-5.06	115.43	121.05
1	D	261	THR	CA-CB-OG1	-5.06	102.01	109.60
1	C	388	GLU	CB-CA-C	-5.04	102.90	110.16
1	C	341	GLN	OE1-CD-NE2	5.03	127.63	122.60
1	D	381	ARG	CB-CA-C	-5.02	102.11	110.14
1	D	57	ARG	CB-CA-C	-5.01	102.10	110.56
1	D	242	ARG	CD-NE-CZ	5.01	131.41	124.40
1	D	240	VAL	N-CA-CB	5.00	119.83	110.77
1	B	116	ARG	NE-CZ-NH1	-5.00	116.50	121.50
1	A	60	MET	N-CA-CB	5.00	117.47	110.12

There are no chirality outliers.

All (32) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	136	ARG	Sidechain
1	A	145	ARG	Sidechain
1	A	441	ARG	Sidechain
1	A	99	ARG	Sidechain
1	B	145	ARG	Sidechain
1	B	192	ARG	Sidechain
1	B	271	ARG	Sidechain
1	B	339	ARG	Sidechain
1	B	420	ARG	Sidechain
1	B	435	THR	Peptide
1	C	145	ARG	Sidechain

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Mol	Chain	Res	Type	Group
1	C	184	GLU	Peptide
1	C	242	ARG	Sidechain
1	C	269	ARG	Sidechain
1	C	274	ARG	Sidechain
1	C	333	ARG	Sidechain
1	C	34	ARG	Sidechain
1	C	346	ARG	Sidechain
1	C	381	ARG	Sidechain
1	C	420	ARG	Sidechain
1	C	441	ARG	Sidechain
1	C	443	ARG	Sidechain
1	C	99	ARG	Sidechain
1	D	145	ARG	Sidechain
1	D	23	ARG	Sidechain
1	D	242	ARG	Sidechain
1	D	259	ARG	Sidechain
1	D	269	ARG	Sidechain
1	D	34	ARG	Sidechain
1	D	462	ARG	Sidechain
1	D	485	ARG	Sidechain
1	D	57	ARG	Sidechain

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	3620	3582	3564	31	1
1	B	3619	3578	3560	24	0
1	C	3591	3550	3532	27	1
1	D	3467	3434	3416	28	0
2	A	53	31	31	0	0
2	B	53	31	31	0	0
2	C	53	31	31	1	0
2	D	53	31	31	0	0
3	A	162	0	0	0	0
3	B	114	0	0	0	0
3	C	173	0	0	6	0
3	D	53	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	15011	14268	14196	110	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 4.

All (110) 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:443:ARG:HH22	1:A:490:GLY:HA2	1.33	0.91
1:A:490:GLY:O	1:A:491:THR:HG22	1.72	0.88
1:A:183:VAL:O	1:A:184:GLU:HB2	1.76	0.86
1:C:269:ARG:NH2	3:C:701:HOH:O	2.13	0.81
1:B:241:ARG:HH11	1:B:241:ARG:HG3	1.46	0.80
1:B:76:ALA:H	1:B:341:GLN:HE21	1.36	0.72
1:D:34:ARG:HH21	1:D:34:ARG:HB3	1.54	0.71
1:D:339:ARG:HG3	1:D:342:MET:HE3	1.72	0.69
1:C:76:ALA:H	1:C:341:GLN:HE21	1.40	0.69
1:A:443:ARG:HH22	1:A:490:GLY:CA	2.06	0.69
1:A:443:ARG:HG3	1:A:443:ARG:HH11	1.58	0.68
1:C:432:LEU:HD21	1:C:473:ALA:HB2	1.75	0.67
1:A:490:GLY:O	1:A:491:THR:CG2	2.41	0.67
1:D:420:ARG:HH11	1:D:420:ARG:HG3	1.60	0.66
1:B:269:ARG:NH1	1:B:272:GLU:OE1	2.29	0.65
1:D:124:LEU:HD23	1:D:124:LEU:C	2.24	0.62
1:B:241:ARG:HG3	1:B:241:ARG:NH1	2.14	0.61
1:A:345:LEU:O	1:A:347:PRO:HD3	2.02	0.60
1:A:124[B]:LEU:HD12	1:A:125:ARG:N	2.17	0.59
1:D:34:ARG:HH21	1:D:34:ARG:CB	2.17	0.57
1:A:309:ALA:O	1:A:315:ALA:HB2	2.06	0.56
1:C:77:HIS:HE1	3:C:853:HOH:O	1.89	0.56
1:D:440:TRP:HA	1:D:440:TRP:CE3	2.40	0.55
1:B:443:ARG:NH2	1:B:487:PHE:O	2.40	0.55
1:B:440:TRP:HB3	1:B:444:ILE:HD12	1.88	0.55
1:C:135:VAL:HG21	1:C:144:ILE:HD12	1.89	0.54
1:A:269:ARG:HH21	1:A:269:ARG:HG3	1.73	0.54
1:C:432:LEU:HD21	1:C:473:ALA:CB	2.38	0.54
1:C:473:ALA:C	1:C:475:ASP:H	2.16	0.52
1:A:220:PHE:CG	1:A:346:ARG:HG3	2.44	0.52
1:B:438:ALA:O	1:B:441:ARG:HB2	2.10	0.52
1:C:77:HIS:HD2	3:C:863:HOH:O	1.92	0.51
1:C:132:GLU:HG2	1:C:145:ARG:HG2	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:171:ASP:CG	1:C:265:ARG:HH21	2.19	0.51
1:D:308:ALA:HB1	1:D:420:ARG:HH21	1.75	0.51
1:D:34:ARG:HH21	1:D:34:ARG:CG	2.24	0.50
1:C:98:HIS:HE1	1:C:99:ARG:NH1	2.10	0.50
1:B:238:ALA:O	1:B:241:ARG:HB3	2.12	0.50
1:B:135:VAL:HG21	1:B:144:ILE:HD12	1.92	0.50
1:C:432:LEU:HD22	1:C:432:LEU:N	2.27	0.50
1:A:491:THR:O	1:A:492:ALA:HB3	2.11	0.49
1:C:34:ARG:NH1	2:C:601:FAD:O3B	2.46	0.49
1:A:209:SER:O	1:A:210:GLN:C	2.56	0.49
1:B:280:ASP:HA	1:B:283:HIS:O	2.13	0.48
1:B:435:THR:O	1:B:437:ALA:N	2.46	0.48
1:A:124[A]:LEU:HD13	1:A:125:ARG:N	2.29	0.48
1:D:420:ARG:HB3	1:D:463:PRO:HG3	1.95	0.48
1:A:490:GLY:C	1:A:491:THR:HG22	2.39	0.48
1:B:420:ARG:NH2	1:B:442:GLU:O	2.47	0.48
1:D:137:TRP:CD1	1:D:139:GLY:H	2.32	0.47
1:C:418:SER:HB2	1:C:420:ARG:HH11	1.78	0.47
1:A:70:PHE:HD2	1:A:72:ARG:HD3	1.79	0.47
1:D:398:LEU:HD23	1:D:398:LEU:HA	1.82	0.47
1:B:437:ALA:O	1:B:446:MET:HE1	2.14	0.47
1:A:130:GLY:HA2	1:A:274:ARG:HD3	1.97	0.47
1:A:241:ARG:CD	1:A:247:GLU:HA	2.45	0.47
1:C:342:MET:CA	1:C:342:MET:HE2	2.45	0.46
1:A:82:PRO:O	1:A:85:LEU:HB2	2.16	0.46
1:C:219:GLU:OE2	1:C:242:ARG:NH1	2.48	0.46
1:C:70:PHE:HD2	3:C:870:HOH:O	1.98	0.46
1:C:182:SER:O	1:C:252:GLY:HA2	2.16	0.45
1:C:342:MET:HE2	1:C:342:MET:HA	1.98	0.45
1:A:135:VAL:HG21	1:A:144:ILE:HD12	1.98	0.45
1:D:426:LEU:HA	1:D:449:GLY:O	2.17	0.44
1:A:436:VAL:HG12	1:A:446:MET:HE1	1.98	0.44
1:C:39:GLU:CD	1:C:255:ARG:HH21	2.24	0.44
1:A:124[A]:LEU:HD23	1:A:133:LEU:CD2	2.47	0.44
1:B:75:PHE:CE1	1:B:341:GLN:HG3	2.53	0.43
1:B:440:TRP:CB	1:B:444:ILE:HD12	2.47	0.43
1:B:441:ARG:HA	1:B:446:MET:HE2	2.00	0.43
1:D:312:ALA:O	1:D:314:LEU:HG	2.18	0.43
1:C:77:HIS:CE1	3:C:853:HOH:O	2.69	0.43
1:D:236:LEU:O	1:D:240:VAL:HG13	2.18	0.43
1:D:368:ASN:O	1:D:372:VAL:HG23	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:405:THR:O	1:A:407:GLY:O	2.37	0.43
1:D:87:GLY:O	1:D:88:GLU:OE2	2.37	0.43
1:D:70:PHE:HB2	1:D:94:LEU:CD1	2.49	0.43
1:B:241:ARG:HH11	1:B:241:ARG:CG	2.22	0.43
1:A:345:LEU:C	1:A:347:PRO:HD3	2.43	0.43
1:C:473:ALA:C	1:C:475:ASP:N	2.77	0.42
1:D:67:GLY:HA3	1:D:94:LEU:O	2.20	0.42
1:D:153:ASP:OD1	1:D:153:ASP:N	2.52	0.42
1:D:124:LEU:C	1:D:124:LEU:CD2	2.93	0.42
1:D:334:ALA:O	1:D:338:THR:HG23	2.20	0.42
1:C:425:ASP:O	1:C:448:SER:HA	2.20	0.42
1:C:219:GLU:OE1	1:C:242:ARG:NH2	2.53	0.42
1:D:241:ARG:HG2	1:D:241:ARG:HH11	1.84	0.42
1:C:156:GLY:O	1:C:157:SER:C	2.62	0.41
1:D:189:LEU:HD12	1:D:189:LEU:HA	1.91	0.41
1:B:479:LEU:C	1:B:479:LEU:CD2	2.94	0.41
1:D:345:LEU:HD23	1:D:345:LEU:HA	1.85	0.41
1:A:419:GLY:O	1:A:463:PRO:HB3	2.19	0.41
1:D:34:ARG:NH2	1:D:36:GLU:O	2.54	0.41
1:D:425:ASP:OD1	1:D:427:SER:OG	2.38	0.41
1:D:63:LEU:O	1:D:64:GLN:C	2.63	0.41
1:D:188:PRO:HB2	1:D:249:THR:O	2.21	0.41
1:B:206:GLY:HA2	1:B:207:PRO:HD3	1.86	0.41
1:B:226:ASP:HA	1:B:227:PRO:HD2	1.98	0.41
1:A:70:PHE:CD2	1:A:72:ARG:HD3	2.56	0.41
1:A:343:THR:HG22	1:A:351:THR:HG21	2.03	0.41
1:B:132:GLU:HG3	1:B:145:ARG:HH21	1.86	0.40
1:B:368:ASN:O	1:B:372:VAL:HG23	2.20	0.40
1:A:124[B]:LEU:HD12	1:A:125:ARG:H	1.85	0.40
1:C:280:ASP:HA	1:C:283:HIS:O	2.21	0.40
1:B:44:LEU:HD23	1:B:44:LEU:HA	1.89	0.40
1:B:103:ARG:HA	1:B:103:ARG:HD3	1.81	0.40
1:A:425:ASP:OD2	1:A:430:GLY:HA2	2.22	0.40
1:C:72:ARG:HB2	3:C:870:HOH:O	2.21	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)
1:C:114:GLN:OE1	1:A:442:GLU:OE2[1_565]	2.15	0.05

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	490/506 (97%)	472 (96%)	15 (3%)	3 (1%)	21 9
1	B	490/506 (97%)	474 (97%)	14 (3%)	2 (0%)	30 18
1	C	485/506 (96%)	466 (96%)	17 (4%)	2 (0%)	30 18
1	D	464/506 (92%)	446 (96%)	17 (4%)	1 (0%)	43 34
All	All	1929/2024 (95%)	1858 (96%)	63 (3%)	8 (0%)	30 18

All (8) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	442	GLU
1	A	184	GLU
1	C	185	ALA
1	B	441	ARG
1	C	442	GLU
1	A	39	GLU
1	B	387	GLY
1	A	456	PRO

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	355/368 (96%)	347 (98%)	8 (2%)	44 27
1	B	355/368 (96%)	346 (98%)	9 (2%)	42 24

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	C	352/368 (96%)	339 (96%)	13 (4%)	30 13
1	D	338/368 (92%)	327 (97%)	11 (3%)	33 15
All	All	1400/1472 (95%)	1359 (97%)	41 (3%)	37 20

All (41) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	37	THR
1	C	40	ARG
1	C	129	SER
1	C	172	GLU
1	C	184	GLU
1	C	353	PRO
1	C	374	LEU
1	C	388	GLU
1	C	436	VAL
1	C	441	ARG
1	C	442	GLU
1	C	455	LEU
1	C	480	THR
1	D	23	ARG
1	D	34	ARG
1	D	36	GLU
1	D	61	ASP
1	D	88	GLU
1	D	110	LYS
1	D	193	LEU
1	D	240	VAL
1	D	358	LEU
1	D	420	ARG
1	D	422	VAL
1	B	188	PRO
1	B	287	PRO
1	B	353	PRO
1	B	400	VAL
1	B	423	LEU
1	B	436	VAL
1	B	455	LEU
1	B	479	LEU
1	B	481	GLU
1	A	85	LEU

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Mol	Chain	Res	Type
1	A	110	LYS
1	A	124[A]	LEU
1	A	124[B]	LEU
1	A	183	VAL
1	A	249	THR
1	A	313	ASP
1	A	443	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (16) such sidechains are listed below:

Mol	Chain	Res	Type
1	C	98	HIS
1	C	198	HIS
1	C	211	ASN
1	C	328	HIS
1	C	341	GLN
1	D	2	ASN
1	D	64	GLN
1	D	114	GLN
1	D	198	HIS
1	D	211	ASN
1	B	77	HIS
1	B	98	HIS
1	B	341	GLN
1	A	64	GLN
1	A	197	GLN
1	A	210	GLN

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)

4 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	FAD	C	601	-	56,58,58	1.00	3 (5%)	81,89,89	0.77	1 (1%)
2	FAD	A	601	-	56,58,58	0.93	3 (5%)	81,89,89	0.91	2 (2%)
2	FAD	D	601	-	56,58,58	0.67	1 (1%)	81,89,89	0.98	4 (4%)
2	FAD	B	601	-	56,58,58	1.14	4 (7%)	81,89,89	1.10	9 (11%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	FAD	C	601	-	-	1/34/50/50	0/6/6/6
2	FAD	A	601	-	-	2/34/50/50	0/6/6/6
2	FAD	D	601	-	-	2/34/50/50	0/6/6/6
2	FAD	B	601	-	-	1/34/50/50	0/6/6/6

All (11) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	601	FAD	C1'-C2'	4.95	1.59	1.52
2	C	601	FAD	C5'-C4'	3.42	1.56	1.51
2	C	601	FAD	PA-O2A	-2.55	1.43	1.55
2	A	601	FAD	C5'-C4'	2.39	1.55	1.51
2	C	601	FAD	C1'-C2'	2.38	1.56	1.52
2	A	601	FAD	C4X-N5	2.31	1.35	1.30
2	B	601	FAD	C10-N10	2.27	1.42	1.37
2	B	601	FAD	PA-O2A	-2.16	1.45	1.55
2	B	601	FAD	P-O2P	-2.08	1.45	1.55
2	D	601	FAD	C1'-C2'	2.01	1.55	1.52
2	A	601	FAD	PA-O2A	-2.01	1.45	1.55

All (16) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	D	601	FAD	O2A-PA-O1A	4.38	133.91	112.24
2	A	601	FAD	O2A-PA-O1A	3.58	129.95	112.24
2	B	601	FAD	O2A-PA-O1A	3.49	129.49	112.24
2	B	601	FAD	O3'-C3'-C4'	-2.94	101.70	108.81
2	C	601	FAD	O2A-PA-O1A	2.93	126.73	112.24
2	D	601	FAD	O5'-P-O1P	-2.75	98.34	109.07
2	B	601	FAD	C5'-C4'-C3'	2.72	117.45	112.20
2	B	601	FAD	C8M-C8-C7	2.60	126.06	120.74
2	B	601	FAD	O2'-C2'-C3'	2.32	114.75	109.10
2	B	601	FAD	C7M-C7-C8	2.24	125.33	120.74
2	A	601	FAD	O2P-P-O1P	2.15	122.89	112.24
2	B	601	FAD	C8M-C8-C9	-2.15	115.51	119.49
2	B	601	FAD	O4'-C4'-C3'	-2.09	104.01	109.10
2	B	601	FAD	C7M-C7-C6	-2.05	115.70	119.49
2	D	601	FAD	O2P-P-O5'	2.04	117.24	107.75
2	D	601	FAD	O3'-C3'-C2'	-2.04	103.88	108.81

There are no chirality outliers.

All (6) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	D	601	FAD	PA-O3P-P-O5'
2	A	601	FAD	PA-O3P-P-O5'
2	B	601	FAD	O4B-C4B-C5B-O5B
2	D	601	FAD	O4B-C4B-C5B-O5B
2	C	601	FAD	O4B-C4B-C5B-O5B
2	A	601	FAD	O4B-C4B-C5B-O5B

There are no ring outliers.

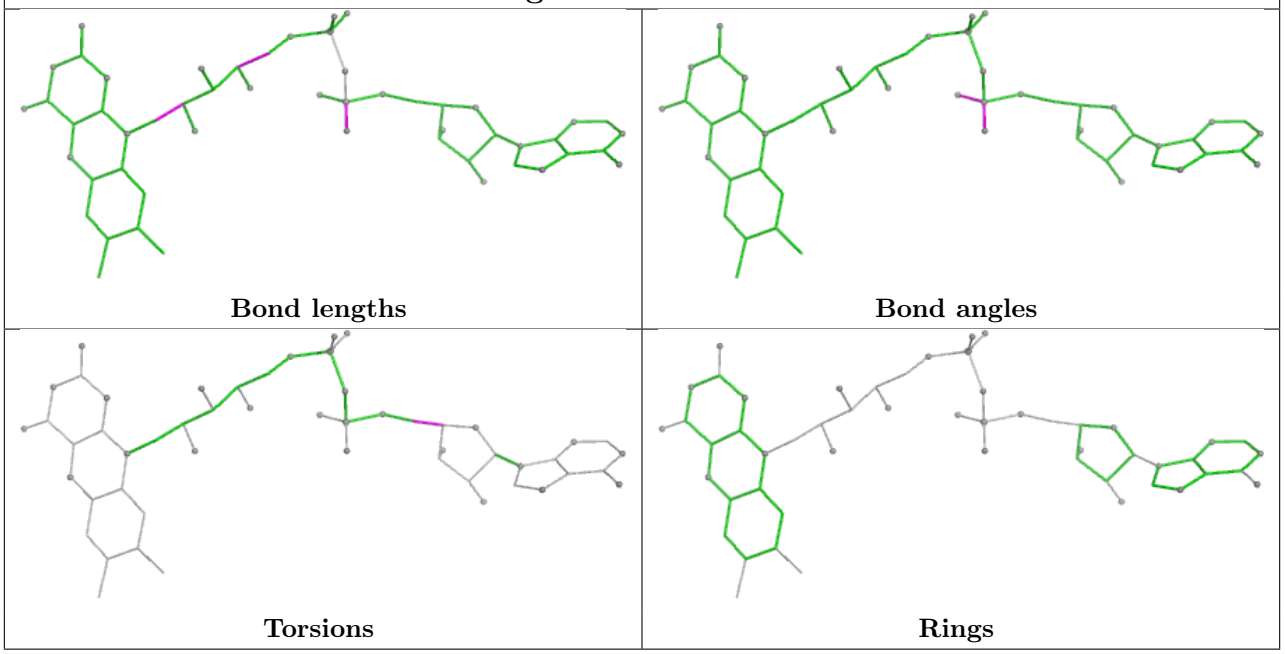
1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	C	601	FAD	1	0

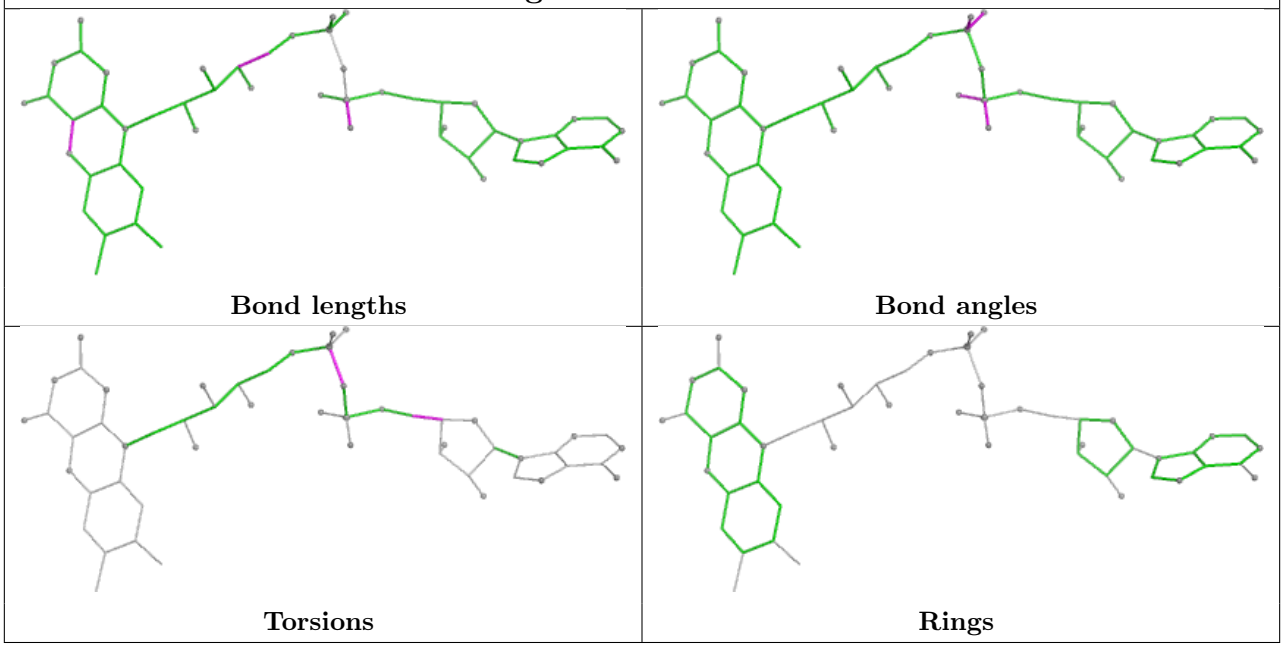
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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

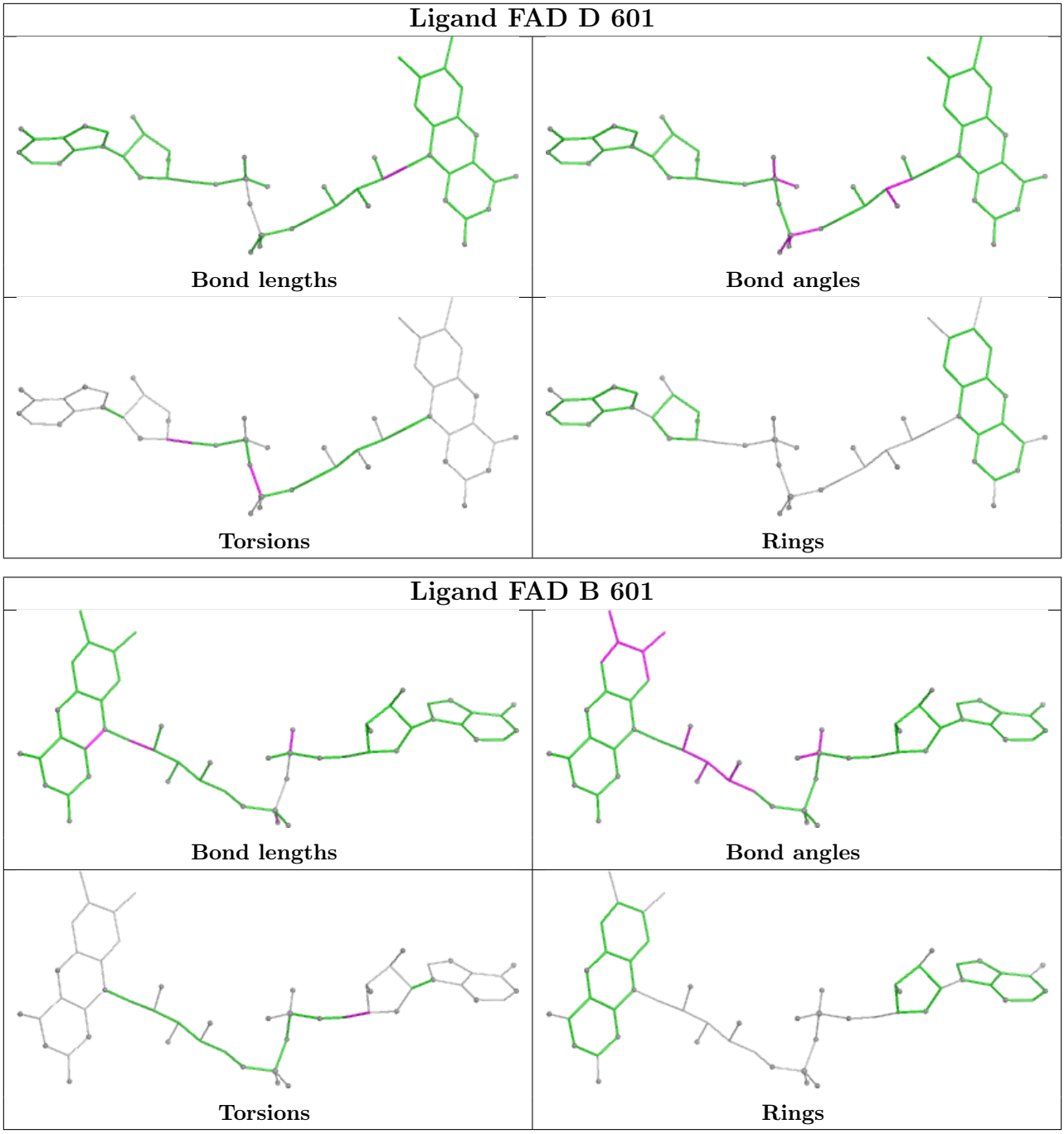
in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

Ligand FAD C 601



Ligand FAD A 601





5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	491/506 (97%)	-0.01	12 (2%)	59	66	23, 45, 81, 123	1 (0%)
1	B	491/506 (97%)	0.13	10 (2%)	65	72	29, 51, 93, 115	1 (0%)
1	C	487/506 (96%)	0.00	13 (2%)	56	61	29, 46, 93, 126	0
1	D	468/506 (92%)	0.37	17 (3%)	46	49	35, 59, 94, 125	0
All	All	1937/2024 (95%)	0.12	52 (2%)	56	61	23, 51, 91, 126	2 (0%)

All (52) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	492	ALA	4.9
1	C	438	ALA	4.7
1	D	400	VAL	4.5
1	D	420	ARG	3.7
1	B	492	ALA	3.6
1	C	38	GLY	3.5
1	C	489	PRO	3.2
1	B	431	GLY	3.1
1	B	437	ALA	3.0
1	C	70	PHE	3.0
1	C	436	VAL	2.9
1	A	70	PHE	2.9
1	A	37	THR	2.9
1	C	434	ALA	2.7
1	B	288	LEU	2.7
1	A	38	GLY	2.6
1	A	314	LEU	2.6
1	B	434	ALA	2.6
1	D	185	ALA	2.5
1	D	249	THR	2.5
1	D	422	VAL	2.5

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Mol	Chain	Res	Type	RSRZ
1	D	288	LEU	2.4
1	B	438	ALA	2.4
1	C	79	TRP	2.4
1	A	315	ALA	2.4
1	A	349	SER	2.4
1	B	435	THR	2.4
1	C	472	THR	2.3
1	A	185	ALA	2.3
1	B	430	GLY	2.3
1	A	348	GLY	2.3
1	B	350	GLY	2.3
1	C	429	GLY	2.2
1	D	3	HIS	2.2
1	D	443	ARG	2.2
1	A	491	THR	2.2
1	D	429	GLY	2.2
1	D	488	GLY	2.2
1	C	474	ALA	2.2
1	D	246	ALA	2.2
1	B	349	SER	2.1
1	A	40	ARG	2.1
1	D	307	LEU	2.1
1	C	439	ALA	2.1
1	D	426	LEU	2.1
1	D	438	ALA	2.1
1	D	379	ASP	2.1
1	D	87	GLY	2.0
1	C	3	HIS	2.0
1	C	480	THR	2.0
1	D	454	GLY	2.0
1	A	249	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 oligosaccharides in this entry.

6.4 Ligands (i)

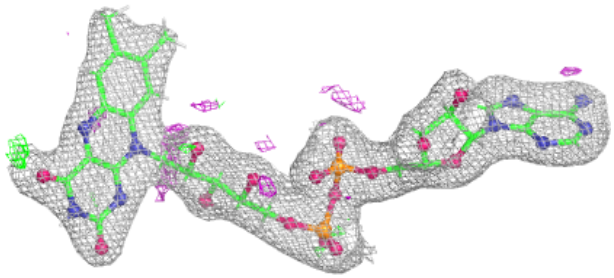
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

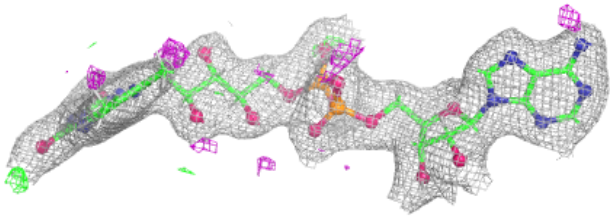
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	FAD	D	601	53/53	0.97	0.07	30,46,57,60	11
2	FAD	C	601	53/53	0.98	0.05	26,34,37,39	11
2	FAD	B	601	53/53	0.98	0.06	30,37,44,59	11
2	FAD	A	601	53/53	0.99	0.05	27,33,39,43	11

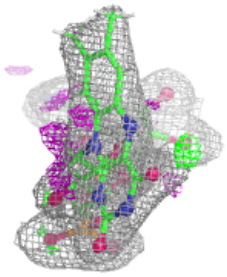
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around FAD D 601:

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

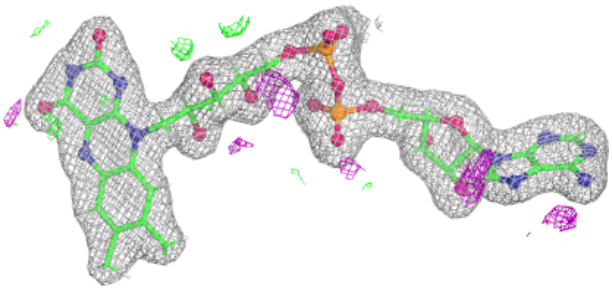


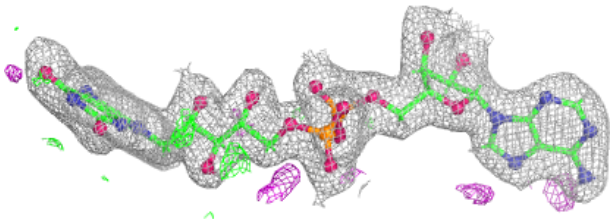


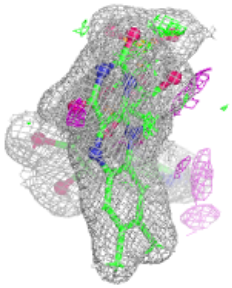


Electron density around FAD C 601:

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

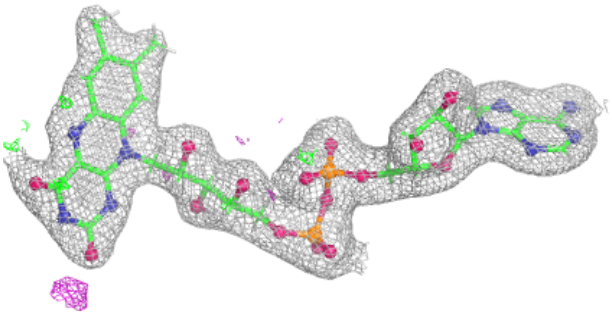


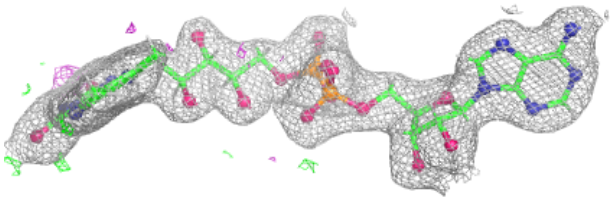


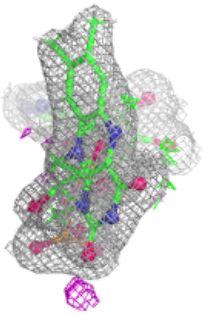


Electron density around FAD B 601:

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

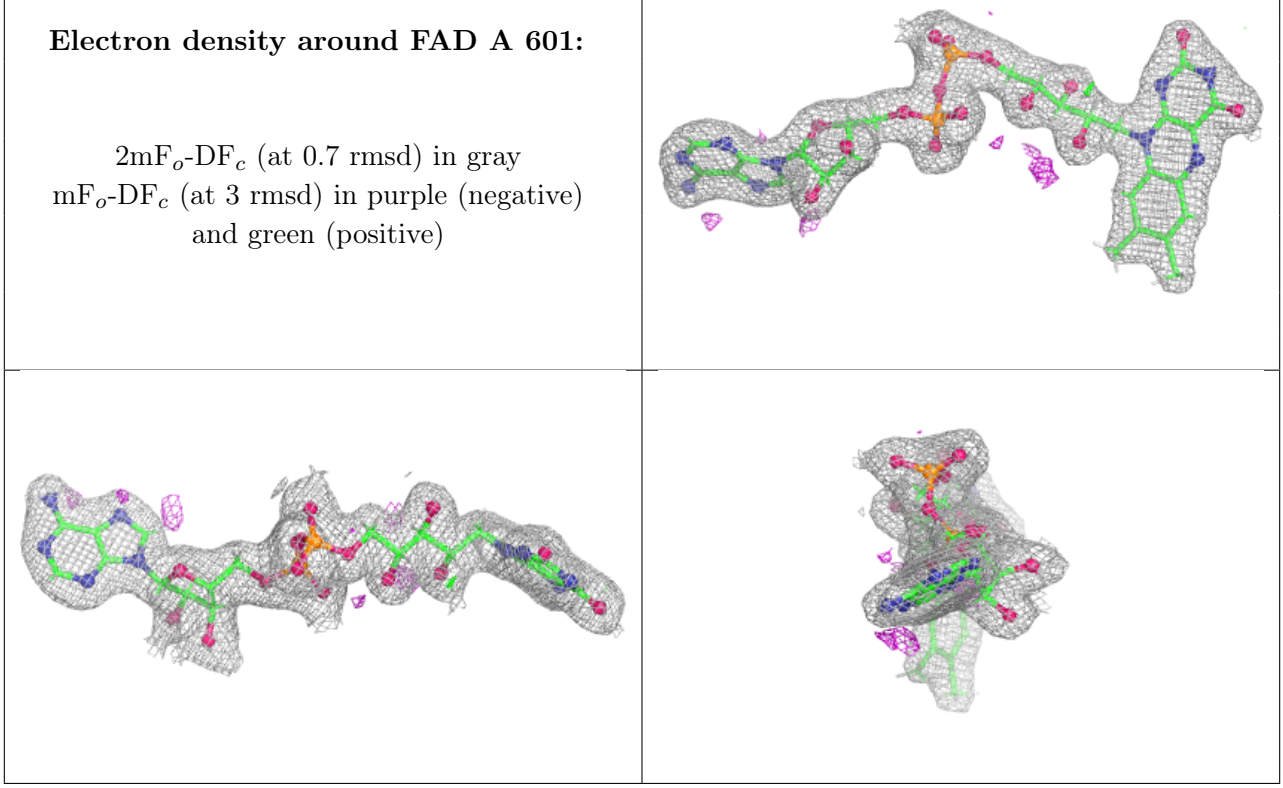






Electron density around FAD A 601:

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



6.5 Other polymers

There are no such residues in this entry.