



wwPDB X-ray Structure Validation Summary Report

Aug 15, 2023 – 03:55 PM EDT

PDB ID : 1TLL
Title : CRYSTAL STRUCTURE OF RAT NEURONAL NITRIC-OXIDE SYNTHASE REDUCTASE MODULE AT 2.3 Å RESOLUTION.
Authors : Garcin, E.D.; Bruns, C.M.; Lloyd, S.J.; Hosfield, D.J.; Tiso, M.; Gachhui, R.; Stuehr, D.J.; Tainer, J.A.; Getzoff, E.D.
Deposited on : 2004-06-09
Resolution : 2.30 Å(reported)

This is a wwPDB X-ray Structure Validation Summary 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)
Xtrriage (Phenix) : 1.13
EDS : 2.35
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)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.35

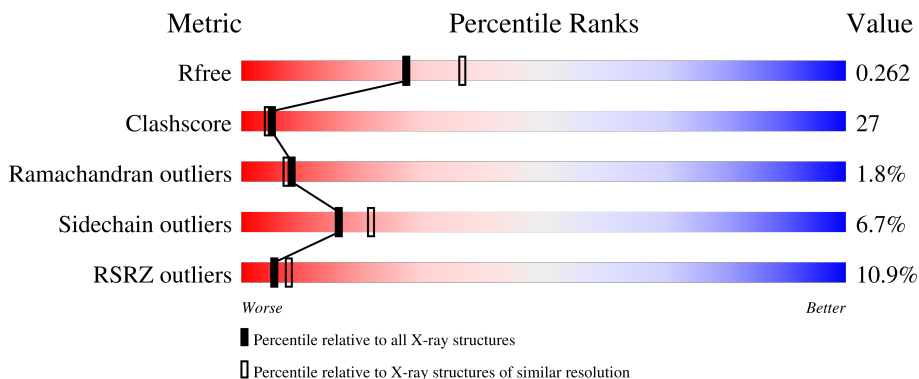
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.30 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	5042 (2.30-2.30)
Clashscore	141614	5643 (2.30-2.30)
Ramachandran outliers	138981	5575 (2.30-2.30)
Sidechain outliers	138945	5575 (2.30-2.30)
RSRZ outliers	127900	4938 (2.30-2.30)

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 $\leq 5\%$. 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	688	
1	B	688	

2 Entry composition [i](#)

There are 6 unique types of molecules in this entry. The entry contains 10408 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.

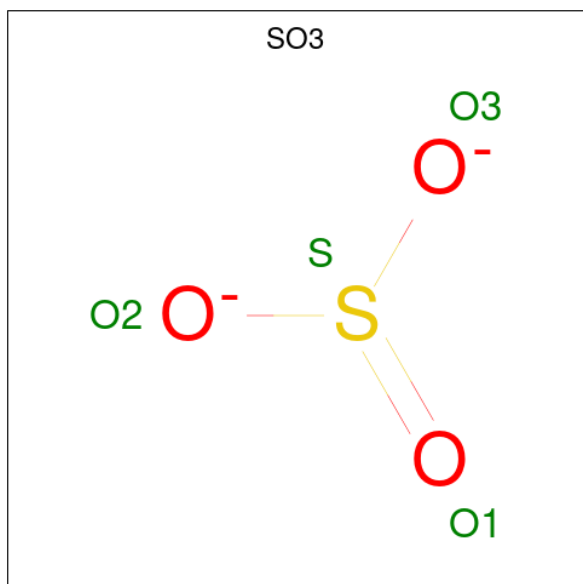
- Molecule 1 is a protein called Nitric-oxide synthase, brain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	630	5010	3170	882	932	26	0	0	0
1	B	616	4903	3106	862	909	26	0	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1008	SER	PHE	SEE REMARK 999	UNP P29476
B	3008	SER	PHE	SEE REMARK 999	UNP P29476

- Molecule 2 is SULFITE ION (three-letter code: SO₃) (formula: O₃S).



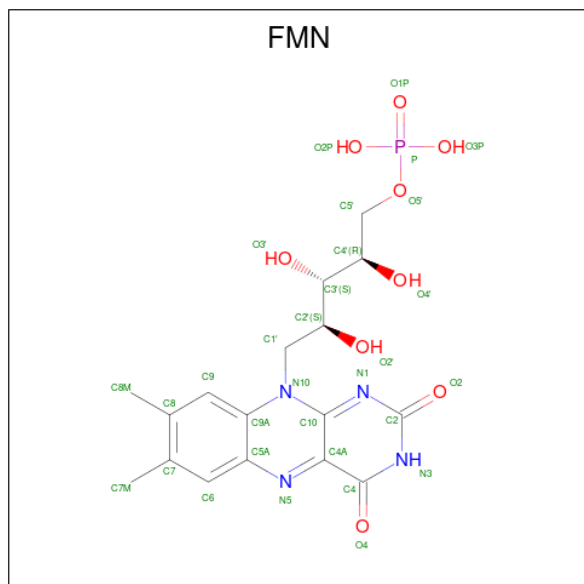
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	O	S		
2	A	1	4	3	1	0	0

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	B	1	Total	O	S	0	0
			4	3	1		

- Molecule 3 is FLAVIN MONONUCLEOTIDE (three-letter code: FMN) (formula: $C_{17}H_{21}N_4O_9P$).



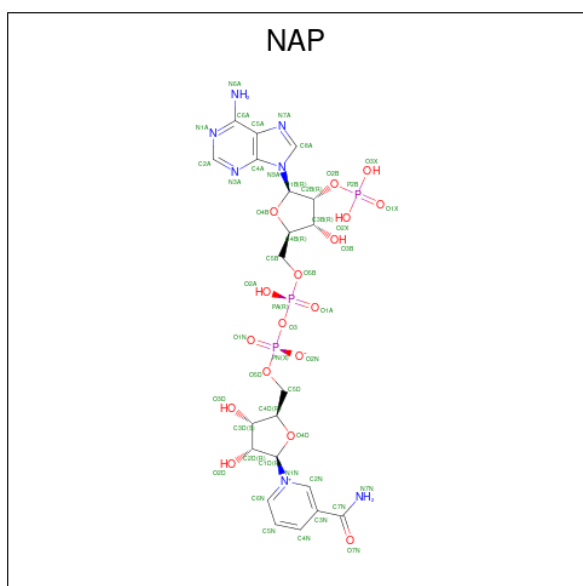
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	N	O	P	0	0
			31	17	4	9	1		
3	B	1	Total	C	N	O	P	0	0
			31	17	4	9	1		

- Molecule 4 is FLAVIN-ADENINE DINUCLEOTIDE (three-letter code: FAD) (formula: $C_{27}H_{33}N_9O_{15}P_2$).



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

- Molecule 5 is NADP NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (three-letter code: NAP) (formula: C₂₁H₂₈N₇O₁₇P₃).



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

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

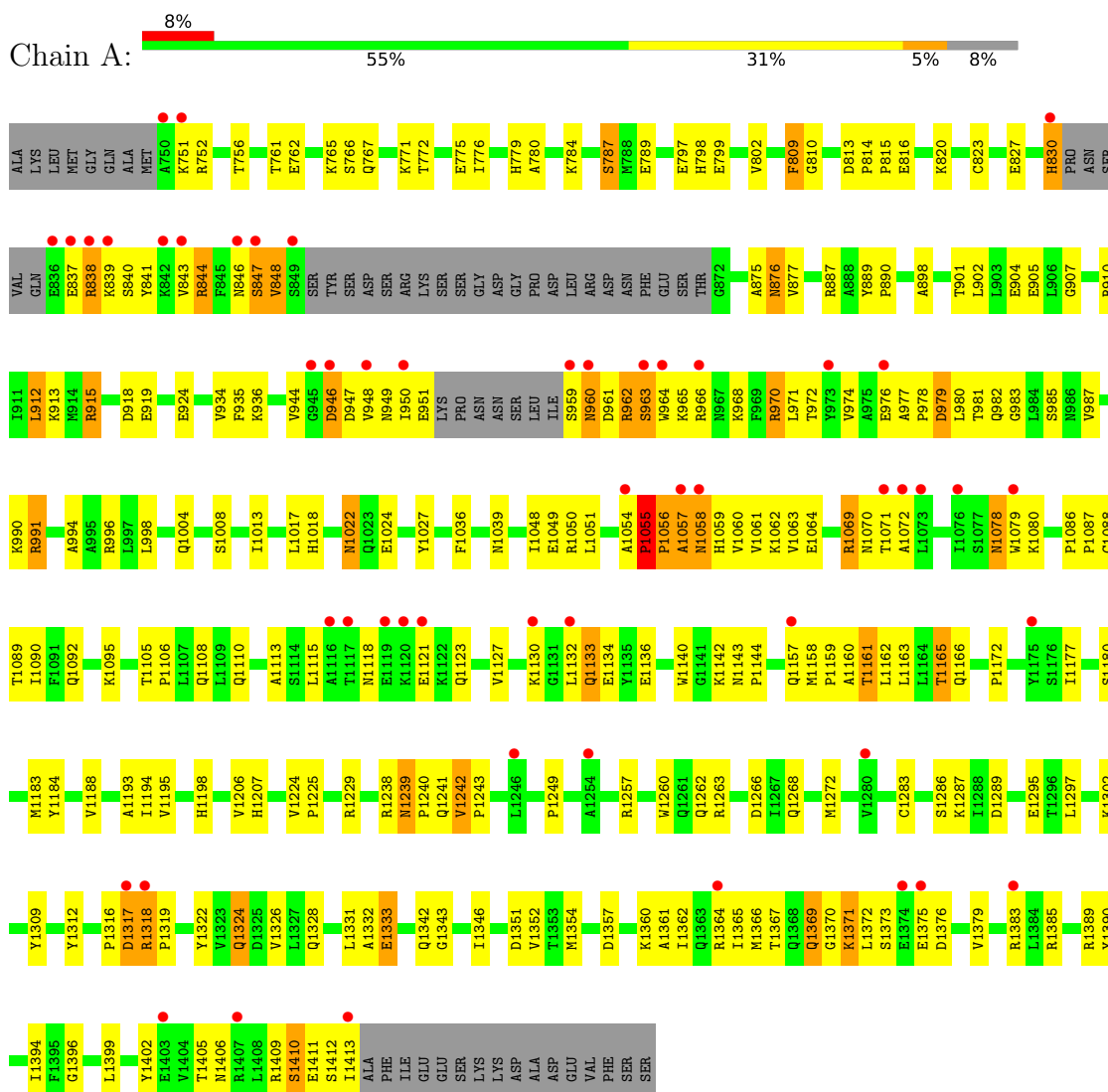
- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	127	Total	O	0	0
			127	127		
6	B	96	Total	O	0	0
			96	96		

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: Nitric-oxide synthase, brain



- Molecule 1: Nitric-oxide synthase, brain



R3385	R3386	R3389	R3390	R3391	G3396	V3397	T3398	L3399	R3400	T3401	Y3402	E3403	T3404	N3405	R3406	R3407	L3408	R3409	S3410	E3411	S3412	I3413	ALA	PHE	ILE	GLU	GLU	SER	LYS	LYS	ASP	ALA	ASP	GLU	VAL	PHE	SER																					
R3319	K3320	K3321	Y3322	V3323	D3325	V3326	L3327	Q3328	E3329	L3330	L3331	A3332	V3335	V3336	R3337	A3338	E3341	Q3342	G3343	G3344	H3345	I3346	Y3347	Y3348	Y3349	G3350	D3351	V3352	T3353	L3354	F3281	G3282	C3283	R3284	Q3285	K3287	I3288	D3289	A3289	V3304	F3305	R3306	E3307	Y3309	Y3312	G3378	V3379	R3380	I3381	S3382	R3383	L3384						
I3218	Q3219	A3220	D3221	C3226	R3238	N3239	P3240	Q3241	V3242	P3243	C3244	I3245	L3246	V3247	G3250	T3251	G3252	I3253	R3257	M3260	Q3261	Q3262	D3266	M3272	V3280	F3281	G3282	C3283	R3284	Q3285	K3287	I3288	D3289	A3289	V3304	F3305	R3306	E3307	Y3309	Y3312	G3378	V3379	R3380	I3381	S3382	R3383	L3384											
E3121	K3122	Q3123	R3124	L3125	L3126	V3127	K3130	G3131	L3132	Q3133	A3134	Y3135	E3136	E3137	M3140	F3144	T3145	M3146	Q3147	E3148	V3149	Q3157	K3158	P3159	A3160	T3161	L3162	T3165	Q3166	K3167	Q3171	Y3174	Y3175	S3176	S3180	V3188	H3189	A3193	T3194	V3195	S3196	Y3197	R3198	S3199	Y3312	G3378	V3379	R3380	I3381	S3382	R3383	L3384						
L3033	G3034	H3040	V3044	E3049	R3050	L3051	E3052	Q3053	P3055	P3056	A3057	L3058	H3059	K3062	V3063	E3064	M3065	L3066	E3067	R3069	R3070	T3071	A3072	L3073	T3076	S3077	R3078	W3079	K3080	D3081	T3089	L3090	F3091	Q3092	F3103	F3104	L3107	Q3108	L3109	Q3110	Q3111	T3019	N3020	G3021	N3022	L3025	Q3026											
N2949	I2950	K2951	P2952	ASN	ASN	SER	LEU	ILE	S2959	N2960	D2961	R2962	S2963	W2964	A2965	R2966	N2967	K2968	F2969	R2970	L2971	T2972	Y2973	V2974	A2975	E2976	D2979	L2980	T2981	A2984	A2985	R2986	L2987	L2988	S2989	R3000	Q3001	N3002	L3003	Q3004	S3008	R3010	F3014	V3015	T3019	N3020	G3021	N3022	L3025	Q3026								
LEU	ALA	ASN	V2877	R2878	F2879	S2880	V2881	F2882	G2883	L2884	Y2889	P2890	H2891	A2894	F2895	A2898	V2899	L2902	L2903	E2904	E2905	L2906	E2909	R2910	L2911	L2912	K2913	M2914	R2915	E2919	L2920	C2921	G2922	R2928	T2929	W2930	A2931	V2934	F2935	K2936	C2939	D2940	V2941	F2942	C2943	V2944	G2945	D2946	D2947	V2948								
P2815	E2816	N2817	G2818	F2819	K2820	F2821	G2822	C2823	A2824	L2825	M2826	E2827	M2828	R2829	HIS	PRO	ASN	SER	VAL	GLN	GLU	GLU	ARG	LYS	S2840	Y2841	R2842	V2843	R2844	F2845	N2846	SER	VAL	SER	SER	TYR	ASP	SER	ARG	SER	ARG	LYS	SER	GLY	ASP	GLY	PRO	ASP	LEU	ARG	ASN	ASN	PHE	GLU	SER	THR	GLY	PRO
ALA	LYS	LEU	MET	GLY	GLN	ALA	MET	ALA	LYS	R2752	V2753	K2754	A2755	T2756	I2757	L2758	Y2759	A2760	T2761	E2762	K2765	GLU	S2766	Y2769	L2773	C2774	E2775	L2776	F2777	K2778	H2779	A2780	F2781	D2782	A2783	K2784	M2786	S2787	M2788	E2789	E2790	Y2791	D2792	L2793	V2794	H2795	L2796	E2799	A2800	L2801	V2802	L2803	V2804	L2805	T2806			

4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	65.76Å 69.17Å 82.63Å 76.80° 72.07° 67.14°	Depositor
Resolution (Å)	35.21 – 2.30 35.21 – 2.17	Depositor EDS
% Data completeness (in resolution range)	97.8 (35.21-2.30) 95.5 (35.21-2.17)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.07	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.61 (at 2.18Å)	Xtrriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.244 , 0.272 0.237 , 0.262	Depositor DCC
R_{free} test set	1909 reflections (2.98%)	wwPDB-VP
Wilson B-factor (Å ²)	37.4	Xtrriage
Anisotropy	0.505	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 55.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.51$, $\langle L^2 \rangle = 0.34$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	10408	wwPDB-VP
Average B, all atoms (Å ²)	57.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.32% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: FMN, NAP, FAD, SO3

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.43	2/5122 (0.0%)	0.71	2/6932 (0.0%)
1	B	0.40	0/5014	0.76	6/6788 (0.1%)
All	All	0.41	2/10136 (0.0%)	0.73	8/13720 (0.1%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	1133	GLN	CA-CB	-5.70	1.41	1.53
1	A	1133	GLN	CG-CD	-5.18	1.39	1.51

The worst 5 of 8 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	3364	ARG	NE-CZ-NH1	19.58	130.09	120.30
1	B	3364	ARG	NE-CZ-NH2	-16.65	111.97	120.30
1	B	2944	VAL	N-CA-C	-6.22	94.21	111.00
1	B	2966	ARG	N-CA-C	5.69	126.37	111.00
1	B	3364	ARG	CD-NE-CZ	5.38	131.14	123.60

There are no chirality outliers.

There are no planarity outliers.

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	5010	0	4925	260	1
1	B	4903	0	4814	287	1
2	A	4	0	0	0	0
2	B	4	0	0	0	0
3	A	31	0	18	0	0
3	B	31	0	18	0	0
4	A	53	0	28	0	0
4	B	53	0	28	0	0
5	A	48	0	24	9	0
5	B	48	0	24	13	0
6	A	127	0	0	2	0
6	B	96	0	0	6	0
All	All	10408	0	9879	545	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 27.

The worst 5 of 545 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)
5:A:1453:NAP:O2A	5:A:1453:NAP:O3D	1.55	1.21
1:B:3360:LYS:O	1:B:3364:ARG:CD	1.98	1.11
1:B:3196:SER:N	6:B:6093:HOH:O	1.59	1.10
1:A:991:ARG:HG3	1:A:991:ARG:HH11	1.12	1.08
1:B:3053:ASP:HB2	1:B:3160:ALA:H	1.11	1.06

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:A:1133:GLN:OE1	1:B:3364:ARG:NE[1_654]	2.08	0.12

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	622/688 (90%)	569 (92%)	40 (6%)	13 (2%)	7	5
1	B	608/688 (88%)	548 (90%)	51 (8%)	9 (2%)	10	10
All	All	1230/1376 (89%)	1117 (91%)	91 (7%)	22 (2%)	8	7

5 of 22 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	839	LYS
1	A	848	VAL
1	A	960	ASN
1	A	963	SER
1	A	1411	GLU

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	543/601 (90%)	506 (93%)	37 (7%)	16	21
1	B	531/601 (88%)	496 (93%)	35 (7%)	16	22
All	All	1074/1202 (89%)	1002 (93%)	72 (7%)	16	21

5 of 72 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	3124	ARG
1	B	3411	GLU
1	B	3171	GLN
1	B	3287	LYS
1	A	1165	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 39 such sidechains are listed below:

Mol	Chain	Res	Type
1	B	2986	ASN
1	B	3261	GLN
1	B	3004	GLN
1	B	3123	GLN
1	B	3324	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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

8 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# $ Z > 2$	Counts	RMSZ	# $ Z > 2$
3	FMN	B	2451	-	33,33,33	4.07	18 (54%)	48,50,50	2.41	17 (35%)
5	NAP	B	2453	-	45,52,52	2.90	10 (22%)	56,80,80	1.77	15 (26%)
2	SO3	A	1500	-	1,3,3	2.51	1 (100%)	0,3,3	-	-
3	FMN	A	1451	-	33,33,33	3.96	19 (57%)	48,50,50	2.48	20 (41%)
4	FAD	B	2452	-	53,58,58	5.62	34 (64%)	68,89,89	2.49	24 (35%)
5	NAP	A	1453	-	45,52,52	2.01	9 (20%)	56,80,80	1.55	12 (21%)
4	FAD	A	1452	-	53,58,58	5.63	39 (73%)	68,89,89	2.48	26 (38%)
2	SO3	B	2500	-	1,3,3	2.48	1 (100%)	0,3,3	-	-

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	FMN	B	2451	-	-	0/18/18/18	0/3/3/3
5	NAP	B	2453	-	-	12/31/67/67	0/5/5/5
3	FMN	A	1451	-	-	0/18/18/18	0/3/3/3
4	FAD	B	2452	-	-	4/30/50/50	0/6/6/6
5	NAP	A	1453	-	-	14/31/67/67	0/5/5/5
4	FAD	A	1452	-	-	4/30/50/50	0/6/6/6

The worst 5 of 131 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	B	2452	FAD	C4A-N3A	15.31	1.56	1.35
4	B	2452	FAD	C2B-C1B	-14.79	1.31	1.53
4	A	1452	FAD	C2B-C1B	-14.43	1.31	1.53
4	A	1452	FAD	C4A-N3A	14.30	1.55	1.35
4	B	2452	FAD	C2A-N1A	11.66	1.55	1.33

The worst 5 of 114 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	1452	FAD	C1B-N9A-C4A	-7.13	114.12	126.64
4	B	2452	FAD	C1B-N9A-C4A	-6.92	114.48	126.64
4	A	1452	FAD	C5X-C9A-N10	-6.45	111.29	117.95
4	B	2452	FAD	C5X-C9A-N10	-6.31	111.44	117.95
3	A	1451	FMN	C7M-C7-C6	-6.26	107.92	119.49

There are no chirality outliers.

5 of 34 torsion outliers are listed below:

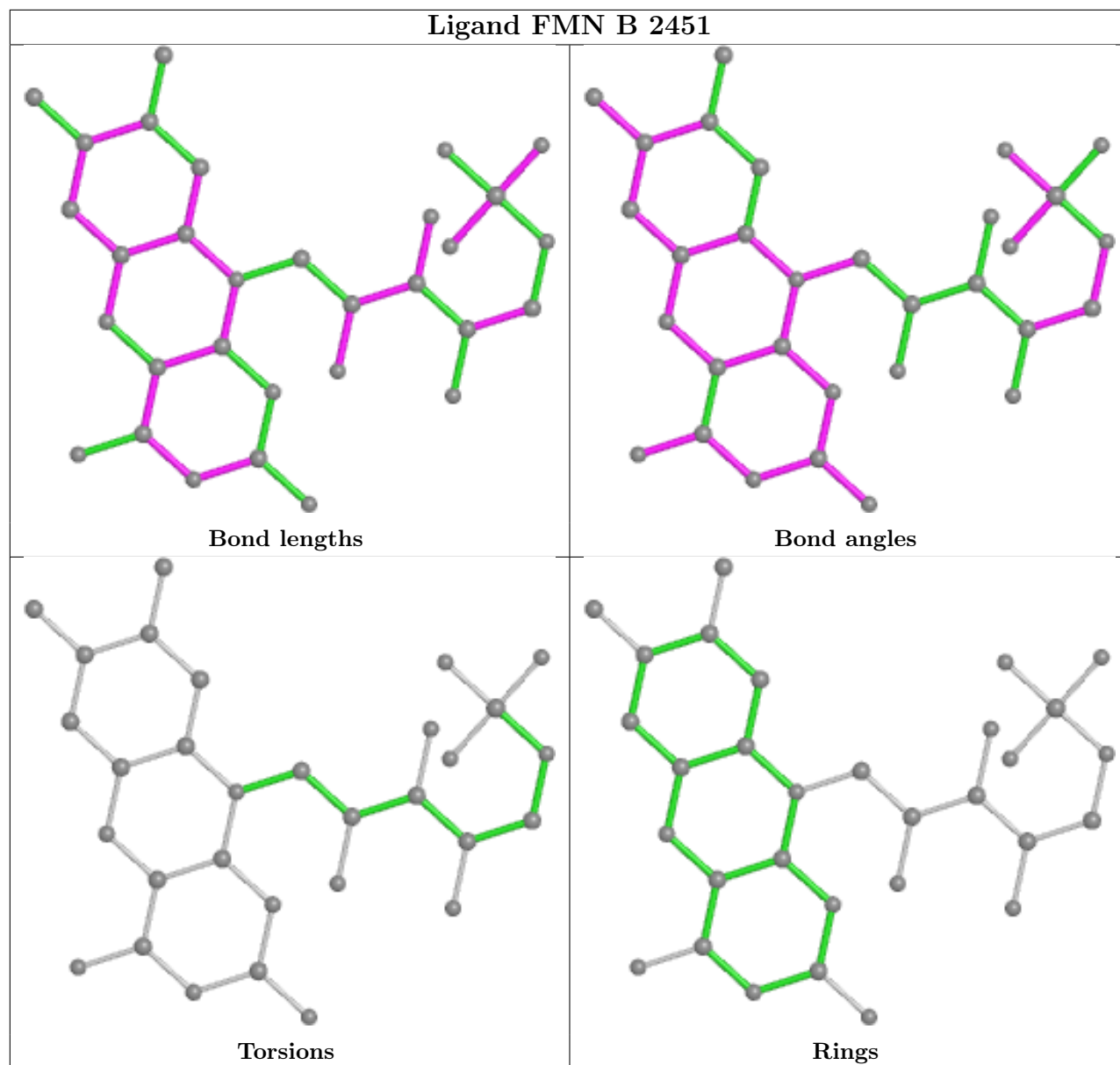
Mol	Chain	Res	Type	Atoms
5	A	1453	NAP	C5B-O5B-PA-O3
5	A	1453	NAP	C5D-O5D-PN-O1N
5	A	1453	NAP	C5D-O5D-PN-O2N
5	A	1453	NAP	O4D-C1D-N1N-C6N
5	B	2453	NAP	C5B-O5B-PA-O1A

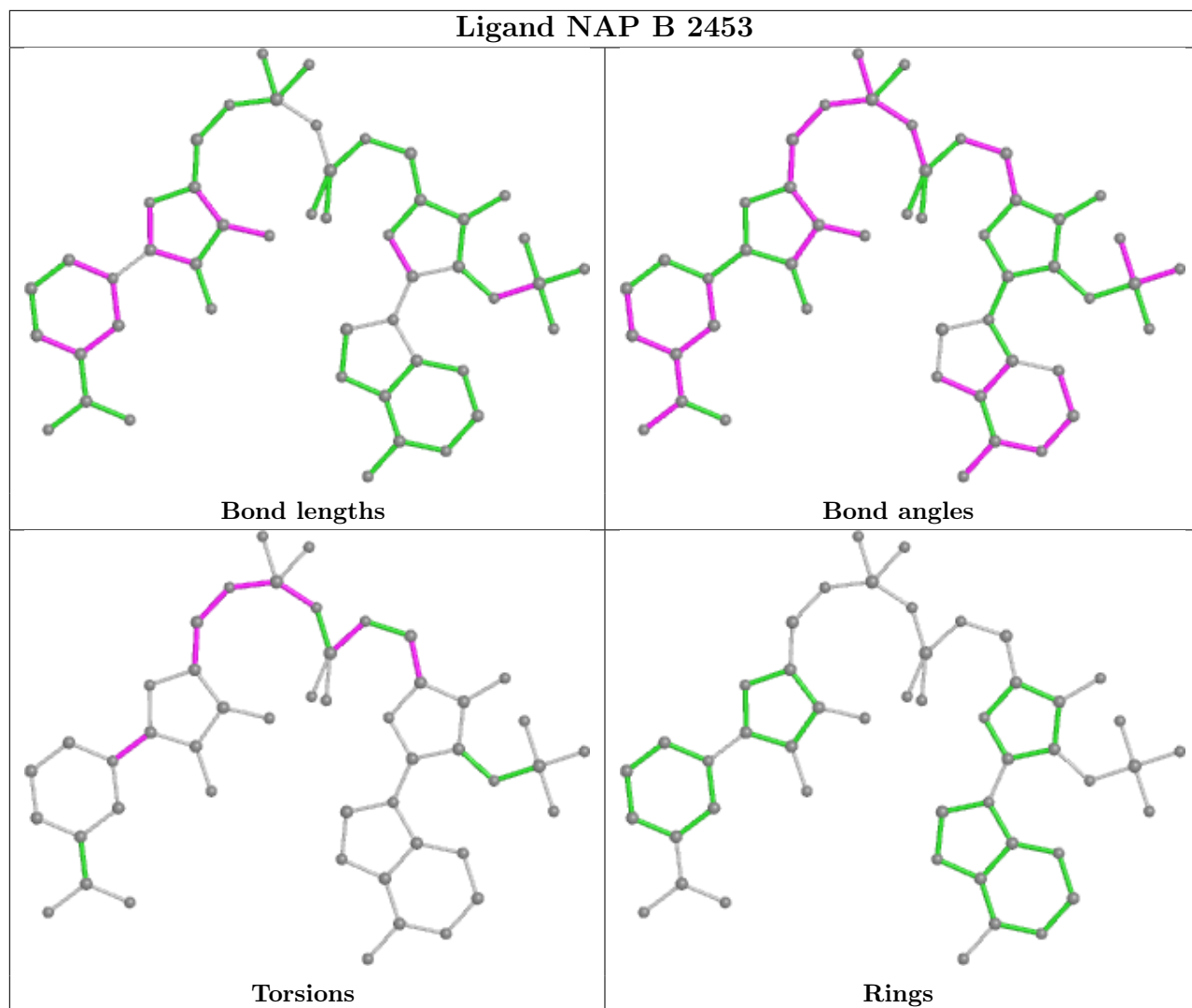
There are no ring outliers.

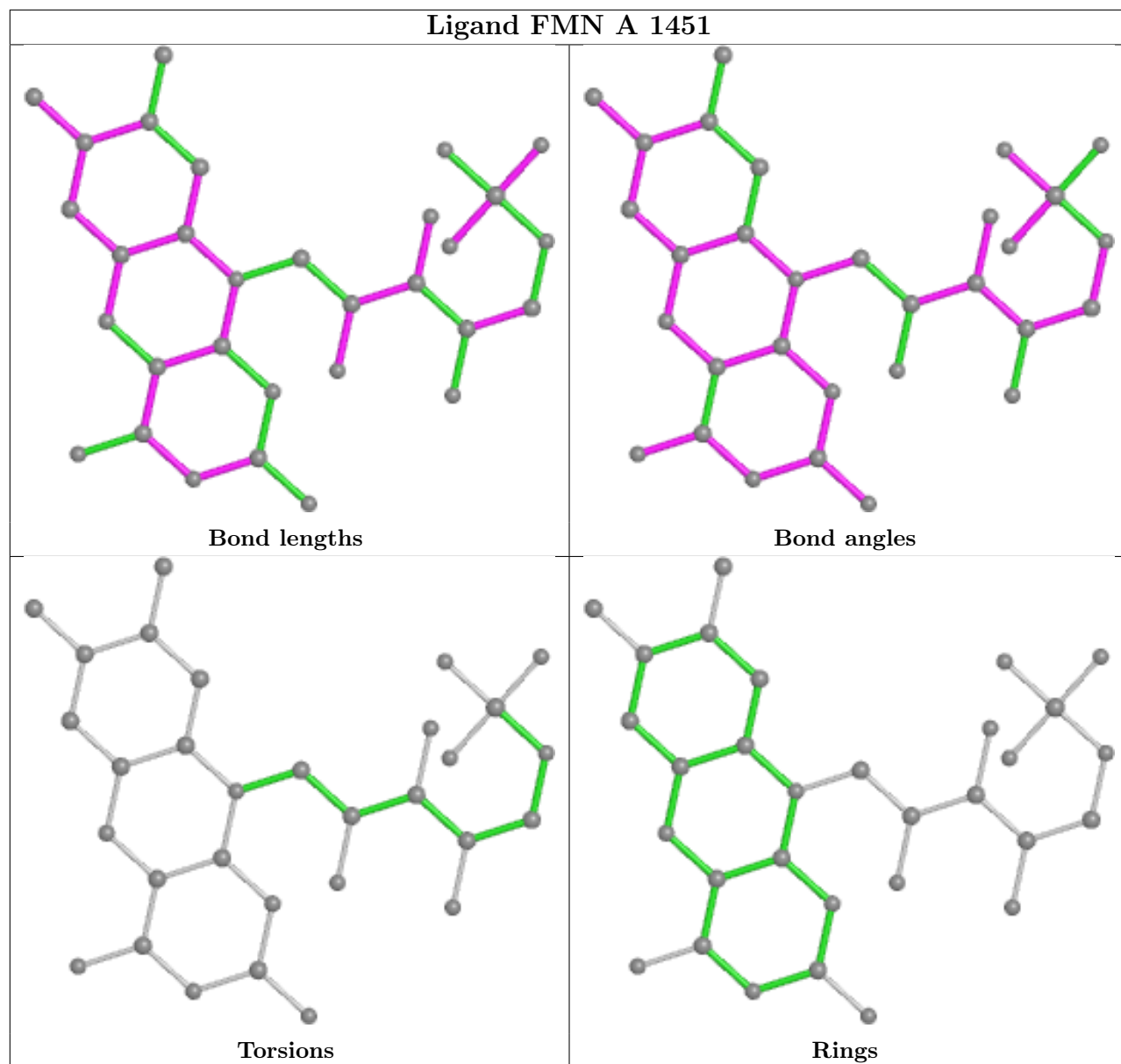
2 monomers are involved in 22 short contacts:

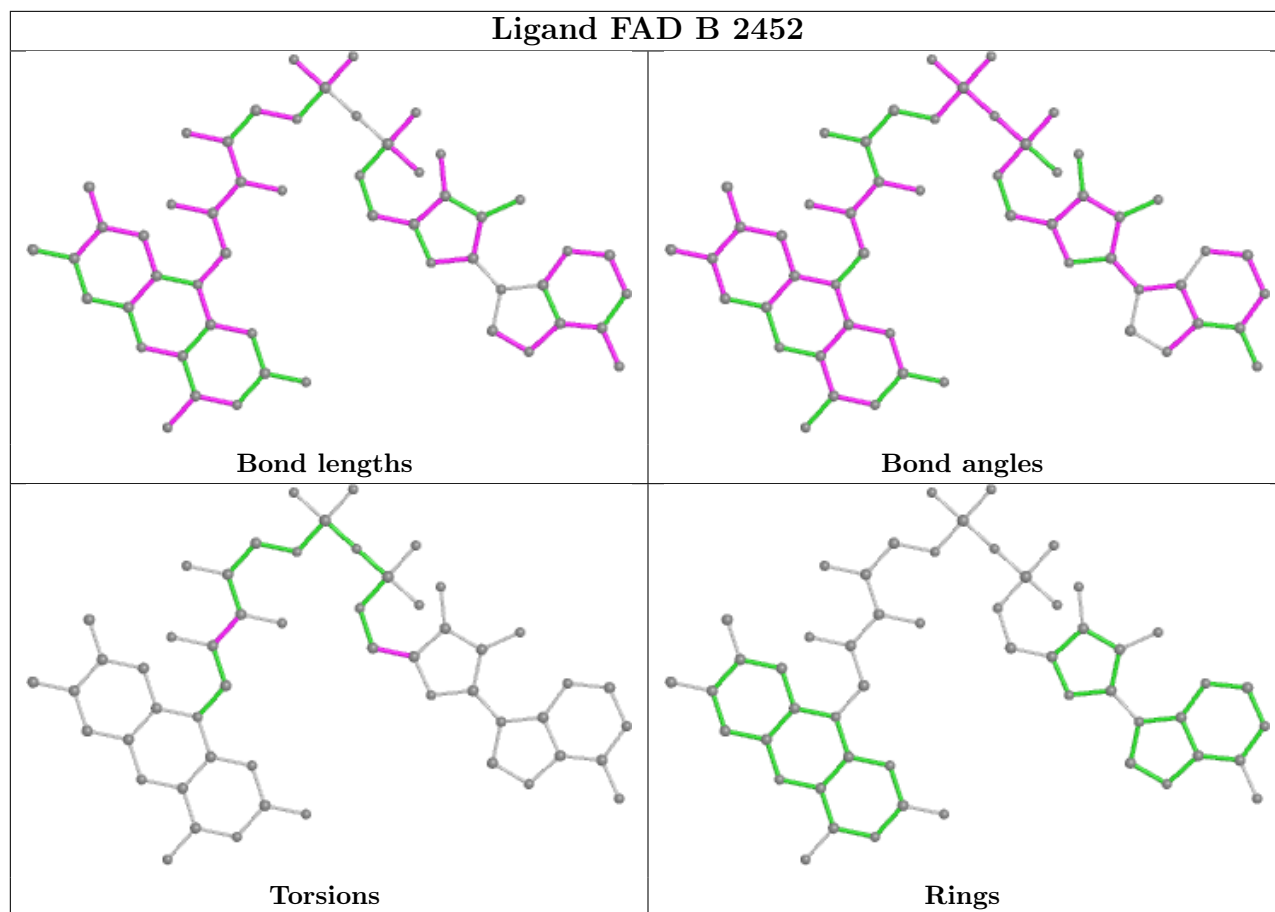
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	B	2453	NAP	13	0
5	A	1453	NAP	9	0

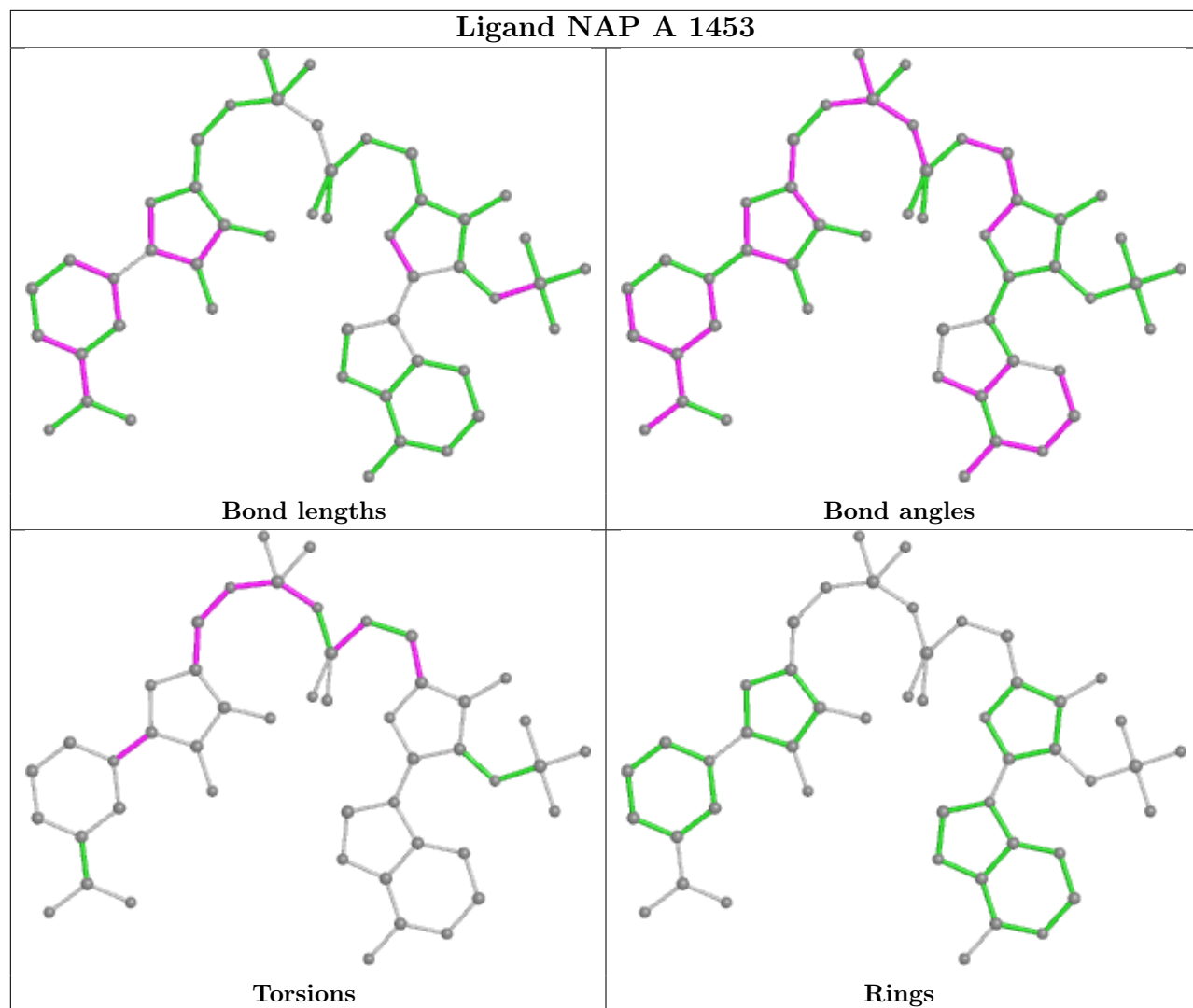
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

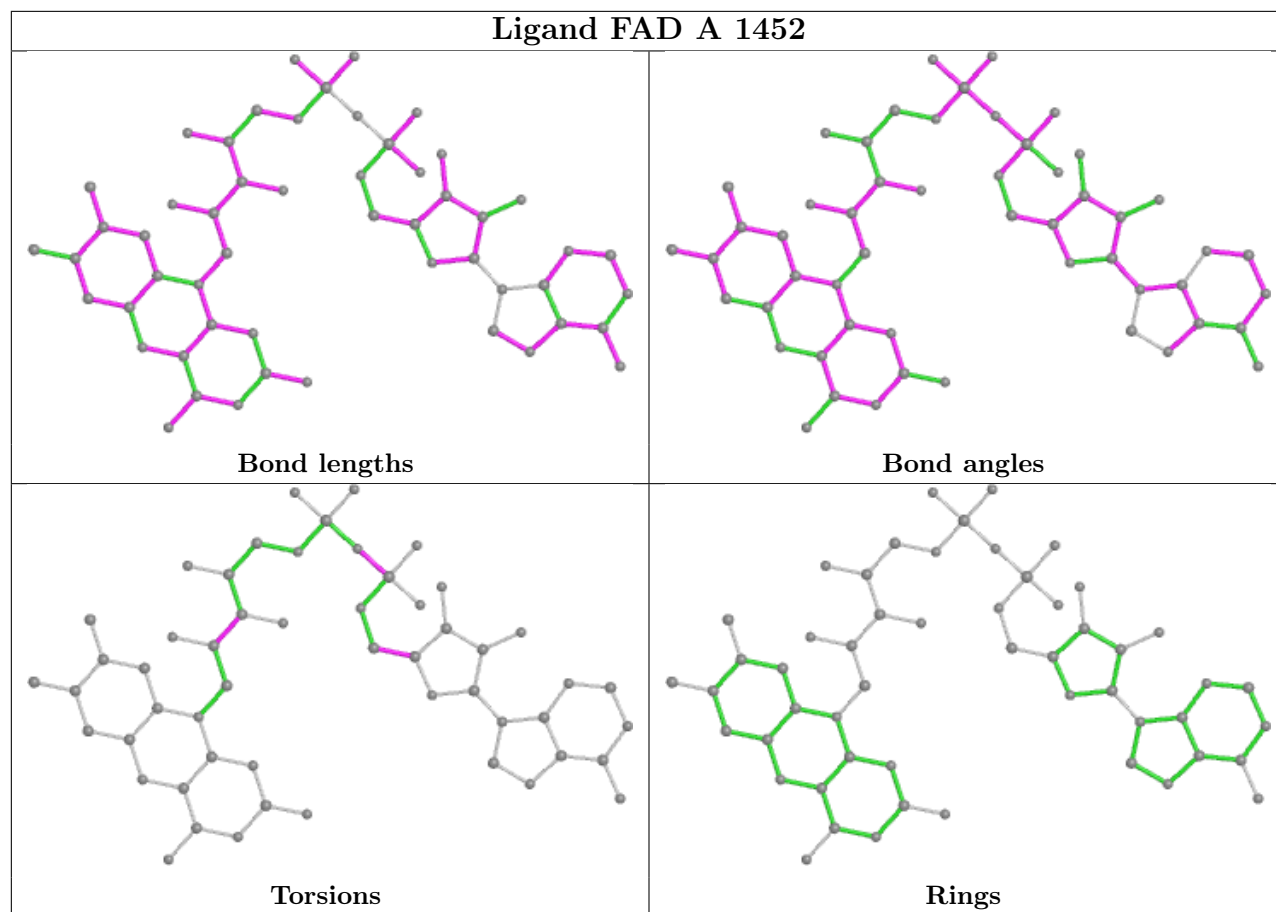












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	630/688 (91%)	0.61	52 (8%) 11 15	28, 52, 88, 99	0
1	B	616/688 (89%)	0.84	84 (13%) 3 4	24, 61, 93, 100	0
All	All	1246/1376 (90%)	0.73	136 (10%) 5 8	24, 56, 92, 100	0

The worst 5 of 136 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	830	HIS	9.8
1	B	2902	LEU	8.7
1	B	3316	PRO	8.0
1	B	2845	PHE	7.5
1	A	950	ILE	7.2

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

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

6.3 Carbohydrates [i](#)

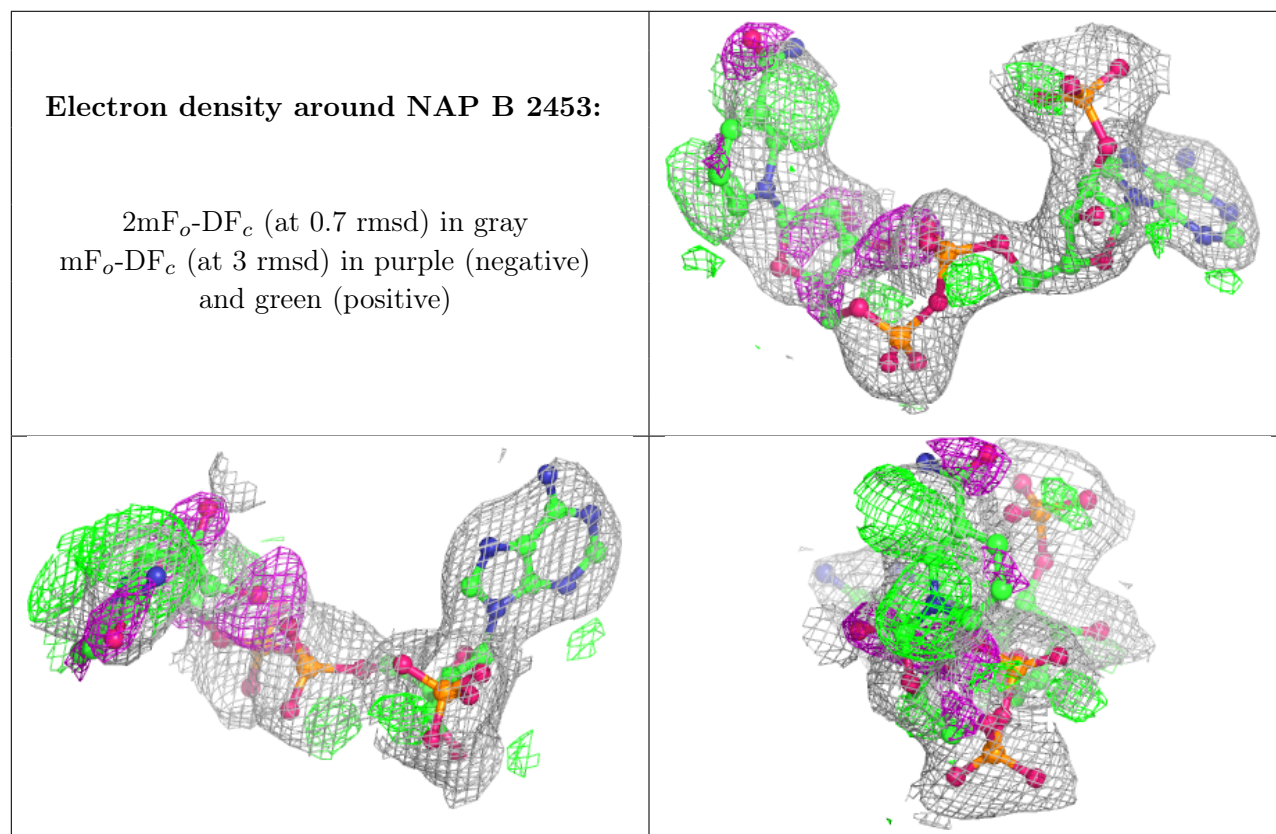
There are no monosaccharides in this entry.

6.4 Ligands [i](#)

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

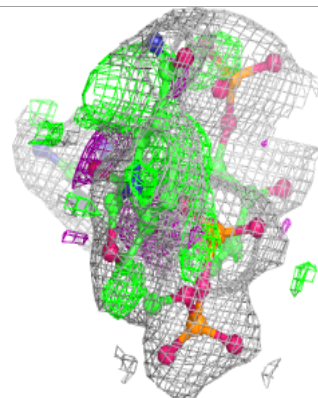
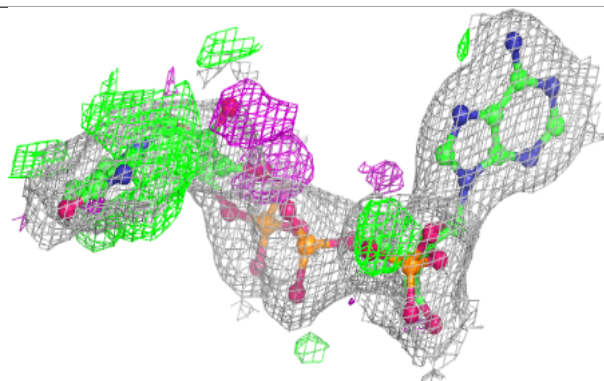
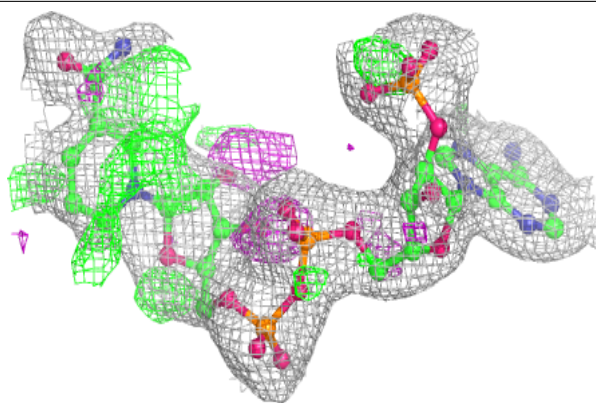
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
2	SO3	A	1500	4/4	0.83	0.22	67,68,68,68	4
5	NAP	B	2453	48/48	0.87	0.18	40,47,59,61	0
5	NAP	A	1453	48/48	0.92	0.17	27,44,54,56	0
2	SO3	B	2500	4/4	0.92	0.13	79,80,81,82	0
4	FAD	B	2452	53/53	0.96	0.16	17,29,59,59	0
3	FMN	A	1451	31/31	0.96	0.17	32,35,38,41	0
3	FMN	B	2451	31/31	0.96	0.18	45,49,53,54	0
4	FAD	A	1452	53/53	0.97	0.17	17,30,51,53	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.

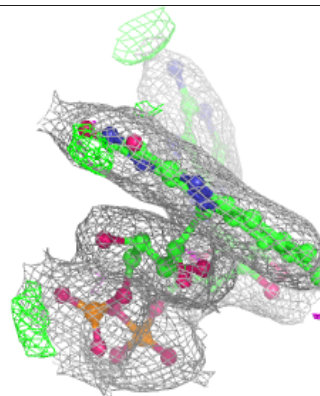
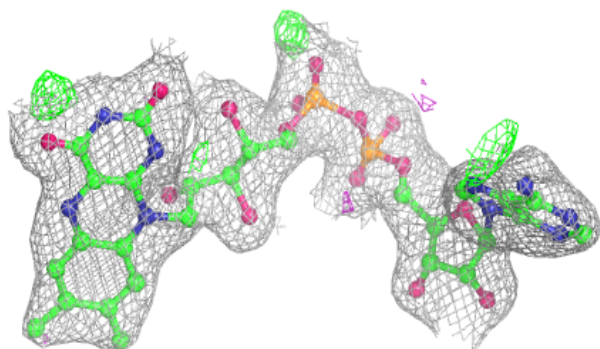
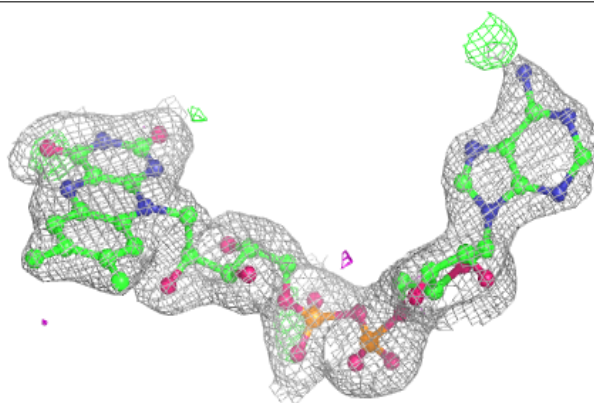


Electron density around NAP A 1453:

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

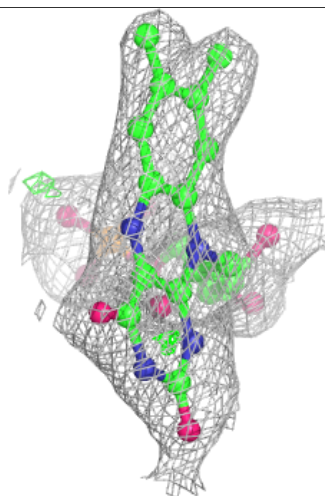
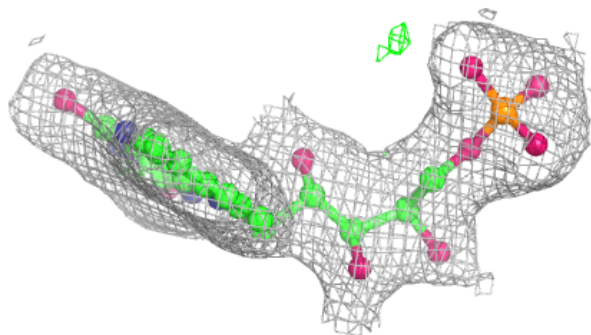
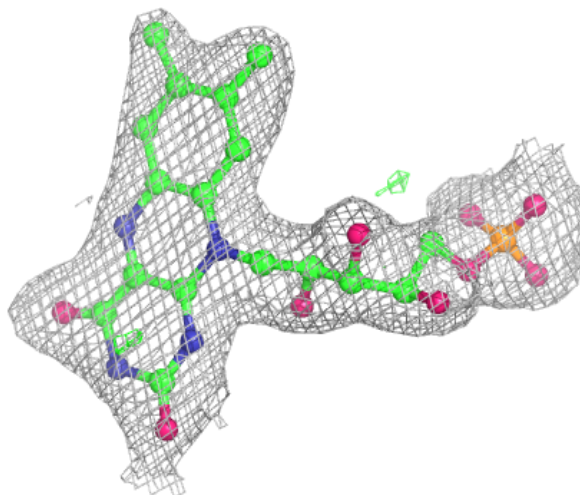
**Electron density around FAD B 2452:**

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



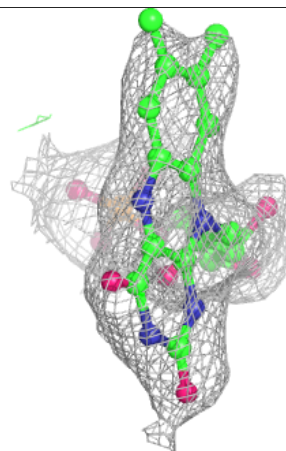
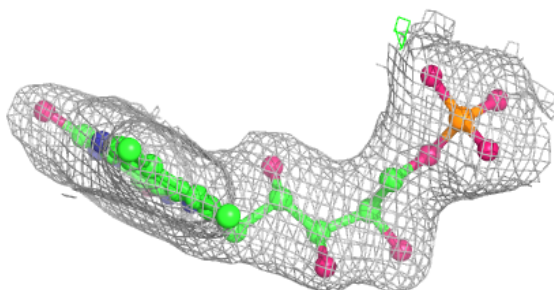
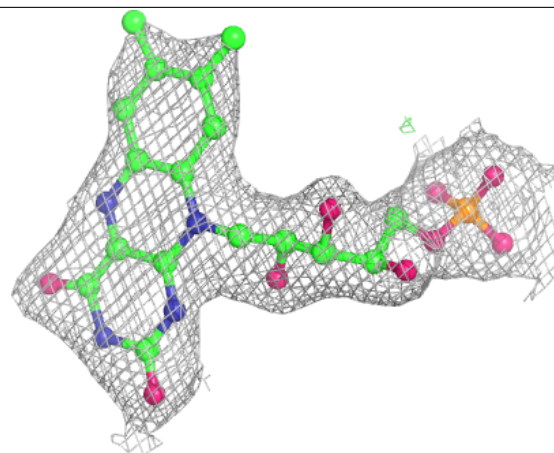
Electron density around FMN A 1451:

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

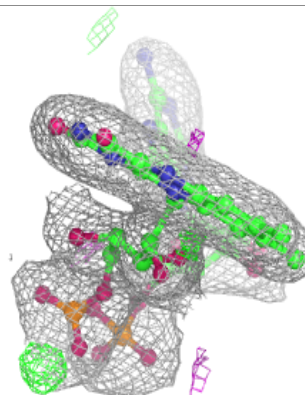
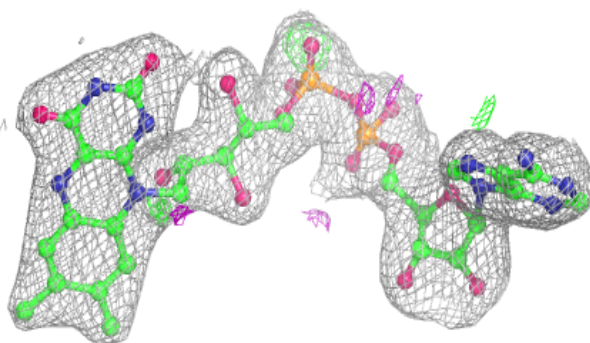
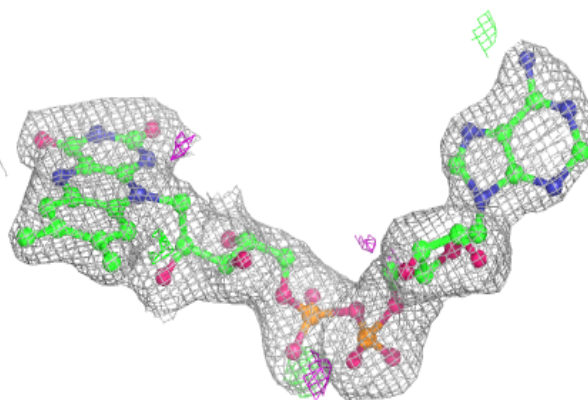


Electron density around FMN B 2451:

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

**Electron density around FAD A 1452:**

$2mF_o-DF_c$ (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.