

# Full wwPDB X-ray Structure Validation Report (i)

#### Sep 14, 2023 - 04:11 PM JST

PDB ID	:	7X3L
Title	:	Crystal structure of Aldo-keto reductase 1C3 complexed with compound
		S07044
Authors	:	Jiang, J.; Liu, Y.; He, S.; Chen, Y.; Chu, X.; Liu, Y.; Guo, Q.; Zhao, L.; Feng,
		F.; Liu, W.; Zhang, X.; Fang, P.; Sun, H.
Deposited on	:	2022-03-01
Resolution	:	1.86  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:

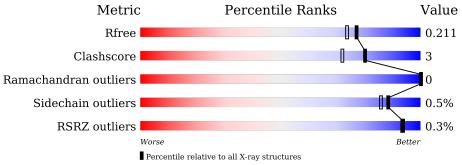
MolProbity		4 021 467
MOIFIODILY	•	4.020-407
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
$\mathrm{EDS}$	:	2.35.1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35.1

# 1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:  $X\text{-}RAY \, DIFFRACTION$ 

The reported resolution of this entry is 1.86 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.



Dercentile relative to X-ray structures of similar resolution

Metric	$egin{array}{c} { m Whole \ archive} \ (\#{ m Entries}) \end{array}$	${f Similar\ resolution}\ (\#{ m Entries,\ resolution\ range}({ m \AA}))$
$R_{free}$	130704	2469(1.86-1.86)
Clashscore	141614	2625 (1.86-1.86)
Ramachandran outliers	138981	2592(1.86-1.86)
Sidechain outliers	138945	2592 (1.86-1.86)
RSRZ outliers	127900	2436 (1.86-1.86)

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	А	329	92%	5% •
1	В	329	91%	5% •



## 2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 5845 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.

Mol	Chain	Residues		At	oms			ZeroOcc	AltConf	Trace
1	Λ	319	Total	С	Ν	0	$\mathbf{S}$	0	2	0
	A	519	2542	1625	442	463	12	0	5	0
1	В	317	Total	С	Ν	0	S	0	1	0
	D	517	2524	1612	441	458	13	0	1	0

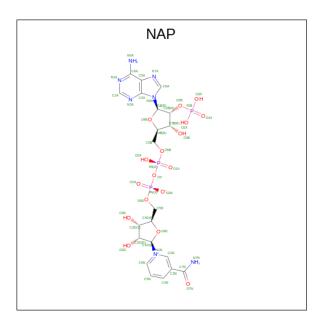
• Molecule 1 is a protein called Aldo-keto reductase family 1 member C3.

Chain	Residue	Modelled	Actual	Actual Comment	
A	-5	MET	-	initiating methionine	UNP P42330
А	-4	HIS	-	expression tag	UNP P42330
А	-3	HIS	-	expression tag	UNP P42330
А	-2	HIS	-	expression tag	UNP P42330
А	-1	HIS	-	expression tag	UNP P42330
А	0	HIS	-	expression tag	UNP P42330
А	1	HIS	-	expression tag	UNP P42330
В	-5	MET	-	initiating methionine	UNP P42330
В	-4	HIS	-	expression tag	UNP P42330
В	-3	HIS	-	expression tag	UNP P42330
В	-2	HIS	-	expression tag	UNP P42330
В	-1	HIS	-	expression tag	UNP P42330
В	0	HIS	-	expression tag	UNP P42330
В	1	HIS	- expression tag		UNP P42330

There are 14 discrepancies between the modelled and reference sequences:

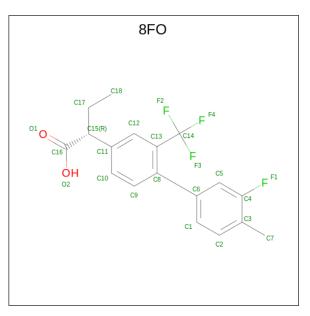
• Molecule 2 is NADP NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (three-letter code: NAP) (formula: C<sub>21</sub>H<sub>28</sub>N<sub>7</sub>O<sub>17</sub>P<sub>3</sub>).





Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
0	Λ	1	Total	С	Ν	Ο	Р	0	0
	A	1	48	21	7	17	3	0	0
0	D	1	Total	С	Ν	0	Р	0	0
	D		48	21	7	17	3	0	0

• Molecule 3 is  $(2 \{R\})-2-[4-(3-fluoranyl-4-methyl-phenyl)-3-(trifluoromethyl)phenyl]butano ic acid (three-letter code: 8FO) (formula: C<sub>18</sub>H<sub>16</sub>F<sub>4</sub>O<sub>2</sub>) (labeled as "Ligand of Interest" by depositor).$ 



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	А	1	Total 24	C 18	F 4	O 2	0	0



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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	В	1	Total 24	C 18	F 4	0 2	0	0

• Molecule 4 is water.

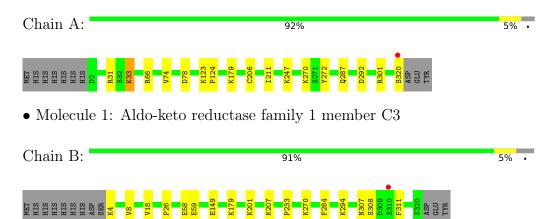
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	А	319	Total O 319 319	0	0
4	В	316	Total O 316 316	0	0



# 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: Aldo-keto reductase family 1 member C3





## 4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1	Depositor
Cell constants	48.75Å 49.49Å 83.46Å	Derecitor
a, b, c, $\alpha$ , $\beta$ , $\gamma$	$74.98^{\circ}$ $74.06^{\circ}$ $61.45^{\circ}$	Depositor
Resolution (Å)	32.03 - 1.86	Depositor
Resolution (A)	42.98 - 1.86	EDS
% Data completeness	86.0 (32.03-1.86)	Depositor
(in resolution range)	96.7 (42.98-1.86)	EDS
R <sub>merge</sub>	0.11	Depositor
$\frac{R_{sym}}{\langle I/\sigma(I) \rangle^{-1}}$	(Not available)	Depositor
$< I/\sigma(I) > 1$	4.53 (at 1.86Å)	Xtriage
Refinement program	PHENIX 1.0	Depositor
D D.	0.169 , $0.211$	Depositor
$R, R_{free}$	0.169 , $0.211$	DCC
$R_{free}$ test set	2747 reflections $(5.20%)$	wwPDB-VP
Wilson B-factor $(Å^2)$	21.5	Xtriage
Anisotropy	0.132	Xtriage
Bulk solvent $k_{sol}(e/Å^3), B_{sol}(Å^2)$	0.31, 55.4	EDS
L-test for twinning <sup>2</sup>	$<  L  > = 0.49, < L^2 > = 0.33$	Xtriage
	0.000  for -h+k,-h,-h+l	
	0.000 for -k,h-k,-k+l	
Estimated twinning fraction	0.017 for h,h-k,h-l	Xtriage
	0.020 for -h+k,k,k-l	
	0.014 for -k,-h,-l	
$F_o, F_c$ correlation	0.95	EDS
Total number of atoms	5845	wwPDB-VP
Average B, all atoms $(Å^2)$	25.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: The largest off-origin peak in the Patterson function is 7.93% of the height of the origin peak. No significant pseudotranslation is detected.

<sup>&</sup>lt;sup>2</sup>Theoretical 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.



<sup>&</sup>lt;sup>1</sup>Intensities estimated from amplitudes.

# 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: 8FO, NAP

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		
	Chain	RMSZ	# Z  > 5	RMSZ	# Z  > 5	
1	А	0.36	0/2610	0.53	1/3537~(0.0%)	
1	В	0.36	0/2586	0.50	0/3501	
All	All	0.36	0/5196	0.52	1/7038~(0.0%)	

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	$Observed(^{o})$	$Ideal(^{o})$
1	А	287	GLN	CB-CA-C	-5.25	99.89	110.40

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	А	2542	0	2532	13	0
1	В	2524	0	2522	15	0
2	А	48	0	24	1	0
2	В	48	0	24	1	0
3	А	24	0	0	0	0
3	В	24	0	0	0	0
4	А	319	0	0	5	0
4	В	316	0	0	8	0



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Mol	Chain	Non-H	H(model) H(added)		Clashes	Symm-Clashes	
All	All	5845	0	5102	28	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 3.

All (28) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

A + 1	A + 0	Interatomic	Clash
Atom-1	Atom-2	distance $(\text{\AA})$	overlap (Å)
1:A:123:LYS:HD2	1:A:124:PRO:HD2	1.51	0.93
1:A:179:LYS:NZ	4:A:501:HOH:O	2.23	0.69
1:A:123:LYS:HD2	1:A:124:PRO:CD	2.23	0.67
1:A:33:LYS:HE3	1:A:272:TYR:HD2	1.63	0.64
1:B:294:LYS:N	1:B:294:LYS:HD3	2.18	0.57
1:B:233:PRO:HA	4:B:675:HOH:O	2.03	0.57
1:A:270:LYS:O	2:A:401:NAP:H8A	2.05	0.57
1:B:270:LYS:O	2:B:401:NAP:H8A	2.06	0.56
1:A:66:ARG:NH1	4:A:503:HOH:O	2.33	0.55
1:A:123:LYS:HD3	4:A:586:HOH:O	2.09	0.53
1:B:4:LYS:N	4:B:513:HOH:O	2.44	0.50
1:B:201:LYS:NZ	4:B:516:HOH:O	2.47	0.48
1:B:4:LYS:HA	1:B:284:PHE:CD2	2.49	0.47
1:B:207:LYS:NZ	4:B:508:HOH:O	2.38	0.47
1:A:247:LYS:NZ	1:A:292:ASP:OD1	2.46	0.46
1:A:74:VAL:CG2	1:A:78:ASP:HB2	2.46	0.45
1:B:8:VAL:HG13	1:B:18:VAL:HG12	1.98	0.45
1:A:320:SER:HB3	4:A:508:HOH:O	2.17	0.44
1:B:8:VAL:HG11	4:B:716:HOH:O	2.16	0.44
1:A:301:ARG:NH2	4:A:510:HOH:O	2.50	0.44
1:B:201:LYS:HD3	1:B:201:LYS:HA	1.59	0.43
1:B:308:SER:HB3	1:B:311:PHE:CD2	2.53	0.43
1:B:149:GLU:HG3	1:B:179:LYS:HE3	2.00	0.42
1:B:26:PRO:HG3	4:B:687:HOH:O	2.21	0.41
1:B:59:GLU:CG	4:B:807:HOH:O	2.69	0.41
1:B:58:GLU:OE2	4:B:501:HOH:O	2.22	0.41
1:A:206:CYS:HB3	1:A:211:ILE:O	2.21	0.40
1:A:74:VAL:HG22	1:A:78:ASP:HB2	2.04	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 Percenti		ntiles
1	А	320/329~(97%)	315~(98%)	5(2%)	0	100	100
1	В	316/329~(96%)	309~(98%)	7~(2%)	0	100	100
All	All	636/658~(97%)	624 (98%)	12 (2%)	0	100	100

There are no Ramachandran outliers to report.

#### 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 Outlie		Percentiles		
1	А	277/293~(94%)	275~(99%)	2(1%)	84	79	
1	В	276/293~(94%)	275 (100%)	1 (0%)	91	89	
All	All	553/586~(94%)	550 (100%)	3~(0%)	88	86	

All (3) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	А	31	ARG
1	А	33	LYS
1	В	307	ASN

Sometimes side chains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such side chains are listed below:



Mol	Chain	Res	Type	
1	А	107	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)

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	Turne	Chain	Res	Link	B	Bond lengths			Bond angles				
	Type	Chain	nes	nes	nes	nes	LINK	Counts	RMSZ	# Z >2	Counts	RMSZ	# Z  > 2
3	8FO	В	402	-	$25,\!25,\!25$	0.46	0	36,37,37	0.68	1 (2%)			
2	NAP	В	401	-	45,52,52	4.29	14 (31%)	56,80,80	1.44	9 (16%)			
3	8FO	А	402	-	$25,\!25,\!25$	0.44	0	36,37,37	0.64	1 (2%)			
2	NAP	А	401	-	45,52,52	4.16	13 (28%)	56,80,80	1.50	9 (16%)			

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	8FO	В	402	-	-	2/20/20/20	0/2/2/2



Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	NAP	В	401	-	-	2/31/67/67	0/5/5/5
3	8FO	А	402	-	-	2/20/20/20	0/2/2/2
2	NAP	А	401	-	-	2/31/67/67	0/5/5/5

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All (27) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	В	401	NAP	O4B-C1B	15.25	1.62	1.41
2	В	401	NAP	O4D-C1D	14.78	1.61	1.41
2	А	401	NAP	O4B-C1B	14.26	1.61	1.41
2	А	401	NAP	O4D-C1D	14.15	1.60	1.41
2	В	401	NAP	C2D-C1D	-13.46	1.33	1.53
2	А	401	NAP	C2D-C1D	-13.36	1.33	1.53
2	А	401	NAP	C7N-N7N	6.61	1.45	1.33
2	В	401	NAP	C7N-N7N	6.40	1.45	1.33
2	В	401	NAP	O4D-C4D	-5.65	1.32	1.45
2	А	401	NAP	O4D-C4D	-5.52	1.32	1.45
2	В	401	NAP	O4B-C4B	-5.35	1.33	1.45
2	А	401	NAP	O4B-C4B	-4.90	1.34	1.45
2	А	401	NAP	O2D-C2D	3.59	1.51	1.43
2	А	401	NAP	C6A-N6A	3.28	1.46	1.34
2	В	401	NAP	C6A-N6A	3.24	1.45	1.34
2	В	401	NAP	O3B-C3B	-3.24	1.35	1.43
2	В	401	NAP	P2B-O2B	3.19	1.65	1.59
2	А	401	NAP	C2A-N3A	3.19	1.37	1.32
2	В	401	NAP	C2A-N3A	3.03	1.37	1.32
2	В	401	NAP	O2D-C2D	3.00	1.50	1.43
2	А	401	NAP	P2B-O2B	2.96	1.64	1.59
2	А	401	NAP	O3B-C3B	-2.87	1.36	1.43
2	В	401	NAP	C3B-C2B	2.44	1.58	1.52
2	А	401	NAP	C3B-C2B	2.19	1.57	1.52
2	В	401	NAP	C5A-C4A	-2.12	1.35	1.40
2	А	401	NAP	C5A-C4A	-2.12	1.35	1.40
2	В	401	NAP	O3D-C3D	-2.06	1.38	1.43

All (20) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	$Observed(^{o})$	$Ideal(^{o})$
2	В	401	NAP	N3A-C2A-N1A	-5.40	120.23	128.68
2	А	401	NAP	N3A-C2A-N1A	-4.97	120.91	128.68
2	А	401	NAP	C5A-C6A-N6A	4.80	127.65	120.35



Mol	Chain	Res	Type	Atoms		$Observed(^{o})$	$Ideal(^{o})$
2	В	401	NAP	C5A-C6A-N6A	3.90	126.27	120.35
2	А	401	NAP	C6N-N1N-C2N	-3.41	118.87	121.97
2	В	401	NAP	C1B-N9A-C4A	-3.13	121.14	126.64
2	А	401	NAP	N6A-C6A-N1A	-3.08	112.18	118.57
2	А	401	NAP	C1B-N9A-C4A	-2.98	121.41	126.64
2	В	401	NAP	C2N-C3N-C4N	2.90	121.54	118.26
2	А	401	NAP	C3B-C2B-C1B	2.86	108.26	102.89
2	А	401	NAP	C3D-C2D-C1D	2.65	104.97	100.98
2	В	401	NAP	N6A-C6A-N1A	-2.65	113.08	118.57
2	В	401	NAP	C3B-C2B-C1B	2.59	107.76	102.89
2	В	401	NAP	C6N-N1N-C2N	-2.46	119.73	121.97
2	А	401	NAP	C2D-C3D-C4D	-2.42	97.93	102.64
2	А	401	NAP	C2N-C3N-C4N	2.36	120.94	118.26
3	В	402	8FO	C5-C4-C3	-2.21	122.98	124.39
3	А	402	8FO	C5-C4-C3	-2.20	122.98	124.39
2	В	401	NAP	C3D-C2D-C1D	2.19	104.27	100.98
2	В	401	NAP	C2D-C3D-C4D	-2.04	98.68	102.64

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There are no chirality outliers.

All (8) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	В	401	NAP	PA-O3-PN-O5D
2	А	401	NAP	PA-O3-PN-O5D
2	А	401	NAP	C4D-C5D-O5D-PN
3	В	402	8FO	C11-C15-C16-O1
2	В	401	NAP	C4D-C5D-O5D-PN
3	А	402	8FO	C11-C15-C16-O1
3	А	402	8FO	C11-C15-C16-O2
3	В	402	8FO	C11-C15-C16-O2

There are no ring outliers.

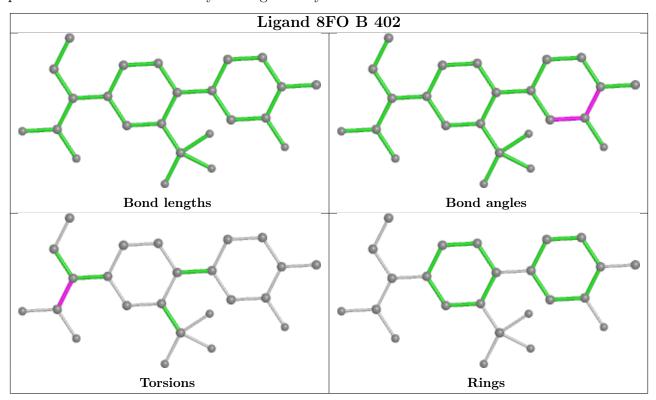
2 monomers are involved in 2 short contacts:

	Mol	Chain	Res	Type	Clashes	Symm-Clashes
Γ	2	В	401	NAP	1	0
	2	А	401	NAP	1	0

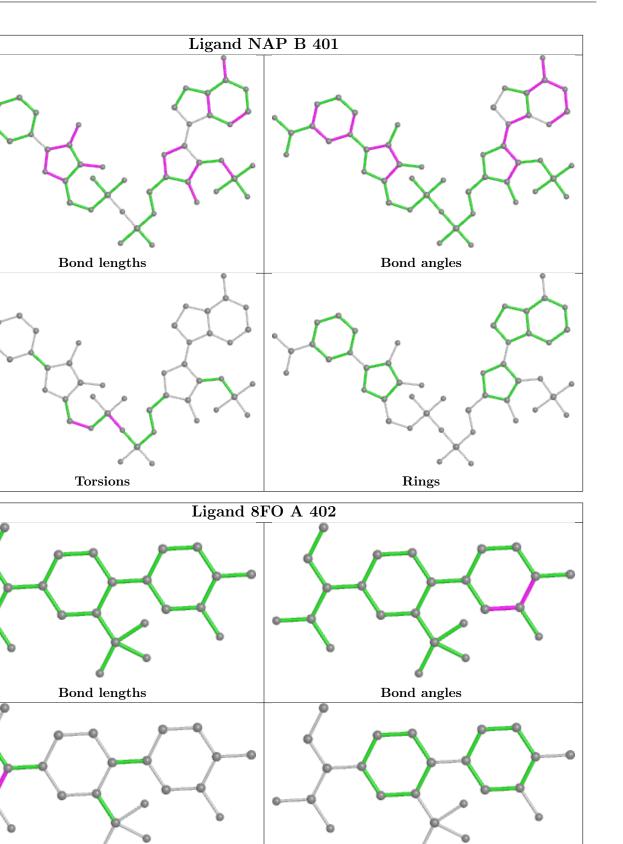
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will



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 similar 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.







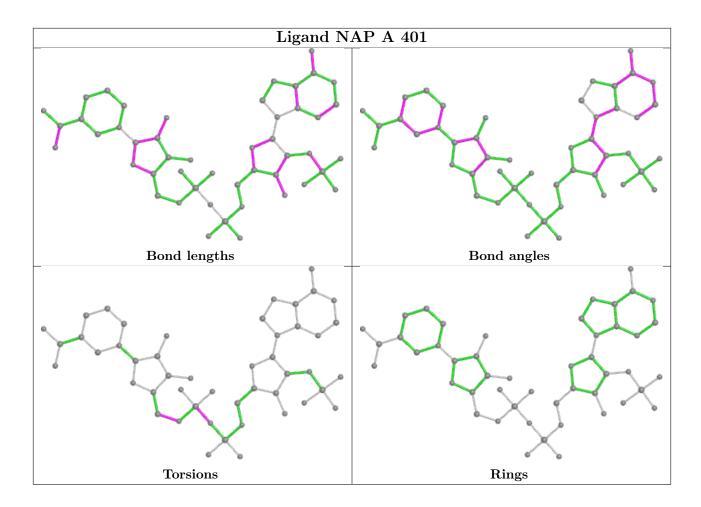


Torsions

é

Rings





## 5.7 Other polymers (i)

There are no such residues in this entry.

## 5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.



## 6 Fit of model and data (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,  $95^{th}$  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	$\langle RSRZ \rangle$	#RSRZ>2	$OWAB(Å^2)$	$Q{<}0.9$
1	А	319/329~(96%)	-0.28	1 (0%) 94 93	13, 22, 40, 53	63 (19%)
1	В	317/329~(96%)	-0.24	1 (0%) 94 93	13, 23, 41, 53	80 (25%)
All	All	636/658~(96%)	-0.26	2 (0%) 94 93	13, 23, 40, 53	143 (22%)

All (2) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	А	320	SER	2.2
1	В	310	SER	2.2

### 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,  $95^{th}$  percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

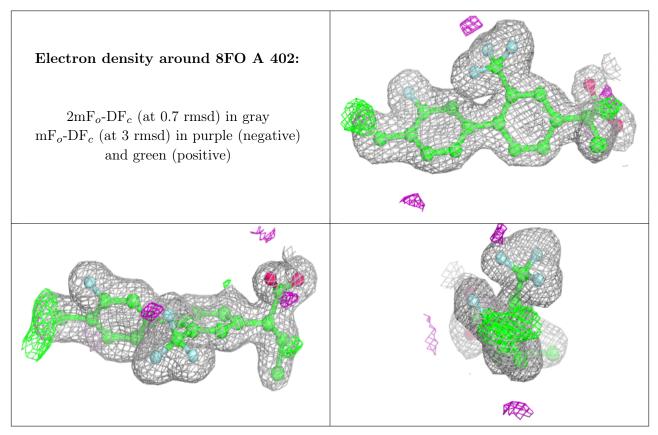
Mol	Type	Chain	Res	Atoms	RSCC	RSR	$B-factors(Å^2)$	Q < 0.9
3	8FO	А	402	24/24	0.92	0.13	$16,\!22,\!28,\!32$	24
3	8FO	В	402	24/24	0.92	0.13	18,25,33,38	24
2	NAP	А	401	48/48	0.95	0.11	12,18,22,26	0



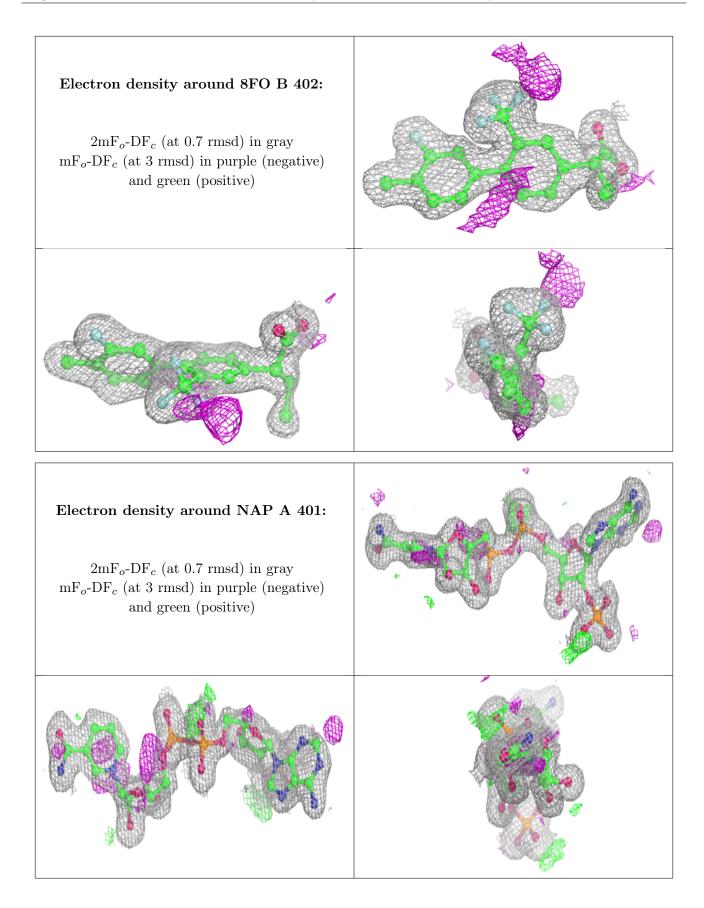
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	$\mathbf{B} ext{-factors}(\mathrm{\AA}^2)$	Q<0.9
2	NAP	В	401	48/48	0.97	0.10	12,18,25,27	48

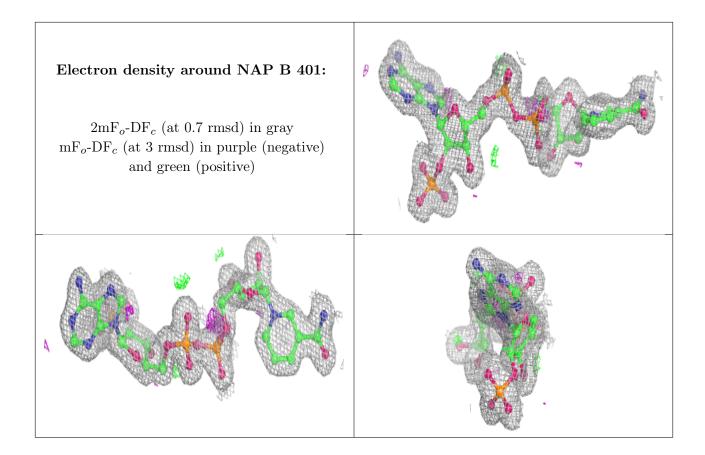
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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











## 6.5 Other polymers (i)

There are no such residues in this entry.

