

Full wwPDB X-ray Structure Validation Report (i)

May 15, 2020 – 04:15 pm BST

PDB ID : 3OJ8

Title: Alpha-Ketoheterocycle Inhibitors of Fatty Acid Amide Hydrolase Containing

Additional Conformational Contraints in the Acyl Side Chain

Authors: Mileni, M.; Stevens, R.C.; Boger, D.L.

Deposited on : 2010-08-20

Resolution : 1.90 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 following versions of software and data (see references (1)) 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 : 2.11

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)

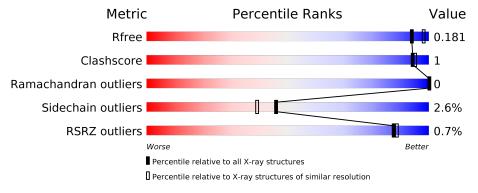
Validation Pipeline (wwPDB-VP) : 2.11

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 1.90 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	$\begin{array}{c} \text{Whole archive} \\ (\#\text{Entries}) \end{array}$	$\begin{array}{c} {\rm Similar \; resolution} \\ (\#{\rm Entries, \; resolution \; range(\AA)}) \end{array}$
R_{free}	130704	6207 (1.90-1.90)
Clashscore	141614	6847 (1.90-1.90)
Ramachandran outliers	138981	6760 (1.90-1.90)
Sidechain outliers	138945	6760 (1.90-1.90)
RSRZ outliers	127900	6082 (1.90-1.90)

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 on 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	573	89%	5%	5%
1	В	573	90%	6%	5%



2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 9528 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 Fatty-acid amide hydrolase 1.

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	Trace		
1	A	542	Total 4234	C 2705	N 720	O 777	S 32	0	11	0
1	В	547	Total 4248	C 2711	N 723	O 783	S 31	0	6	0

There are 58 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	7	MET	-	EXPRESSION TAG	UNP P97612
A	8	GLY	-	EXPRESSION TAG	UNP P97612
A	9	SER	-	EXPRESSION TAG	UNP P97612
A	10	SER	_	EXPRESSION TAG	UNP P97612
A	11	HIS	-	EXPRESSION TAG	UNP P97612
A	12	HIS	-	EXPRESSION TAG	UNP P97612
A	13	HIS	-	EXPRESSION TAG	UNP P97612
A	14	HIS	-	EXPRESSION TAG	UNP P97612
A	15	HIS	-	EXPRESSION TAG	UNP P97612
A	16	HIS	_	EXPRESSION TAG	UNP P97612
A	17	SER	-	EXPRESSION TAG	UNP P97612
A	18	SER	-	EXPRESSION TAG	UNP P97612
A	19	GLY	-	EXPRESSION TAG	UNP P97612
A	20	LEU	-	EXPRESSION TAG	UNP P97612
A	21	VAL	-	EXPRESSION TAG	UNP P97612
A	22	PRO	-	EXPRESSION TAG	UNP P97612
A	23	ARG	-	EXPRESSION TAG	UNP P97612
A	24	GLY	=	EXPRESSION TAG	UNP P97612
A	25	SER	-	EXPRESSION TAG	UNP P97612
A	26	HIS	=	EXPRESSION TAG	UNP P97612
A	27	MET	-	EXPRESSION TAG	UNP P97612
A	28	ALA	-	EXPRESSION TAG	UNP P97612
A	29	SER	-	EXPRESSION TAG	UNP P97612
A	192	PHE	LEU	ENGINEERED MUTATION	UNP P97612
A	194	TYR	PHE	ENGINEERED MUTATION	UNP P97612

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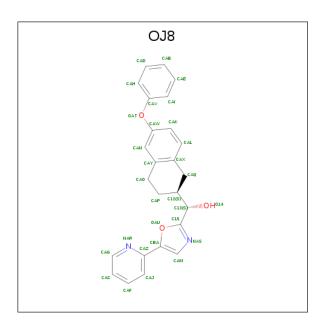


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Chain	Residue	Modelled	Actual	Comment	Reference
A	377	THR	ALA	ENGINEERED MUTATION	UNP P97612
A	435	ASN	SER	ENGINEERED MUTATION	UNP P97612
A	491	VAL	ILE	ENGINEERED MUTATION	UNP P97612
A	495	MET	VAL	ENGINEERED MUTATION	UNP P97612
В	7	MET	-	EXPRESSION TAG	UNP P97612
В	8	GLY	_	EXPRESSION TAG	UNP P97612
В	9	SER	_	EXPRESSION TAG	UNP P97612
В	10	SER	-	EXPRESSION TAG	UNP P97612
В	11	HIS	_	EXPRESSION TAG	UNP P97612
В	12	HIS	-	EXPRESSION TAG	UNP P97612
В	13	HIS	_	EXPRESSION TAG	UNP P97612
В	14	HIS	-	EXPRESSION TAG	UNP P97612
В	15	HIS	-	EXPRESSION TAG	UNP P97612
В	16	HIS	_	EXPRESSION TAG	UNP P97612
В	17	SER	-	EXPRESSION TAG	UNP P97612
В	18	SER	-	EXPRESSION TAG	UNP P97612
В	19	GLY	_	EXPRESSION TAG	UNP P97612
В	20	LEU	-	EXPRESSION TAG	UNP P97612
В	21	VAL	-	EXPRESSION TAG	UNP P97612
В	22	PRO	-	EXPRESSION TAG	UNP P97612
В	23	ARG	-	EXPRESSION TAG	UNP P97612
В	24	GLY	-	EXPRESSION TAG	UNP P97612
В	25	SER	-	EXPRESSION TAG	UNP P97612
В	26	HIS	-	EXPRESSION TAG	UNP P97612
В	27	MET	=	EXPRESSION TAG	UNP P97612
В	28	ALA	-	EXPRESSION TAG	UNP P97612
В	29	SER	=	EXPRESSION TAG	UNP P97612
В	192	PHE	LEU	ENGINEERED MUTATION	UNP P97612
В	194	TYR	PHE	ENGINEERED MUTATION	UNP P97612
В	377	THR	ALA	ENGINEERED MUTATION	UNP P97612
В	435	ASN	SER	ENGINEERED MUTATION	UNP P97612
В	491	VAL	ILE	ENGINEERED MUTATION	UNP P97612
В	495	MET	VAL	ENGINEERED MUTATION	UNP P97612

• Molecule 2 is (S)-[(2S)-6-phenoxy-1,2,3,4-tetrahydronaphthalen-2-yl](5-pyridin-2-yl-1,3-oxa zol-2-yl)methanol (three-letter code: OJ8) (formula: $C_{25}H_{22}N_2O_3$).





Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
2	Α	1	Total				0	0	
	71	1	30	25	2	3	U		
9	D	1	Total	С	Ν	Ο	0	0	
	Ъ	1	30	25	2	3	U	U	

• Molecule 3 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total Cl 1 1	0	0

• Molecule 4 is water.

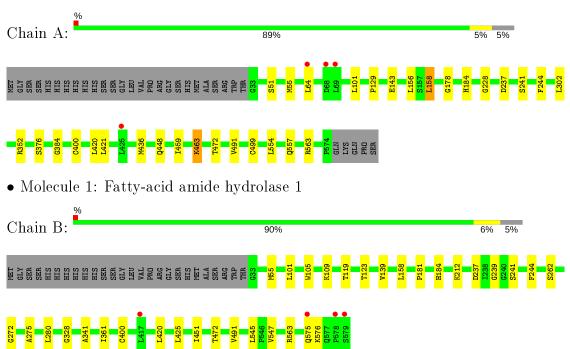
Me	ol	Chain	Residues	Atoms	ZeroOcc	AltConf
4		A	431	Total O 431 431	0	0
4		В	554	Total O 554 554	0	0



3 Residue-property plots (i)

These plots are drawn for all protein, RNA and DNA 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: Fatty-acid amide hydrolase 1





4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 32 2 1	Depositor
Cell constants	$103.30 \text{\AA} 103.30 \text{Å} 253.35 \text{Å}$	Danagitan
a, b, c, α , β , γ	90.00° 90.00° 120.00°	Depositor
Resolution (Å)	39.53 - 1.90	Depositor
resolution (A)	39.53 - 1.90	EDS
% Data completeness	95.7 (39.53-1.90)	Depositor
(in resolution range)	95.7 (39.53-1.90)	EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) > 1$	2.31 (at 1.89Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.6.2_432)	Depositor
P.P.	0.154 , 0.185	Depositor
R, R_{free}	0.152 , 0.181	DCC
R_{free} test set	5971 reflections (5.03%)	wwPDB-VP
Wilson B-factor (Å ²)	20.9	Xtriage
Anisotropy	0.146	Xtriage
Bulk solvent $k_{sol}(e/Å^3)$, $B_{sol}(Å^2)$	0.34, 56.3	EDS
L-test for twinning ²	$< L >=0.47, < L^2>=0.30$	Xtriage
Estimated twinning fraction	0.029 for -h,-k,l	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	9528	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 2.44% of the height of the origin peak. No significant pseudotranslation is detected.

²Theoretical 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.



¹Intensities 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: OJ8, CL

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		
MIOI	Chain	RMSZ	# Z >5	RMSZ	# Z > 5	
1	A	0.50	0/4361	0.61	0/5915	
1	В	0.50	0/4361	0.62	0/5914	
All	All	0.50	0/8722	0.62	0/11829	

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (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	4234	0	4315	12	0
1	В	4248	0	4315	12	0
2	A	30	0	21	0	0
2	В	30	0	21	1	0
3	A	1	0	0	0	0
4	A	431	0	0	1	0
4	В	554	0	0	0	0
All	All	9528	0	8672	23	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 1.



All (23) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

A 4 a mg 1	A 4 a ma . 2	Interatomic	Clash
Atom-1	Atom-2	${f distance}({f \AA})$	overlap (Å)
1:A:554:LEU:HB2	1:A:557[B]:GLN:OE1	2.09	0.52
1:B:341:ALA:HB1	1:B:547:VAL:HG21	1.96	0.48
1:A:448[B]:GLN:NE2	1:B:272:GLY:O	2.48	0.47
1:B:262:SER:O	1:B:280:LEU:HD21	2.15	0.46
1:B:275:ALA:HB1	1:B:451:ILE:CD1	2.46	0.44
1:A:129:PRO:HD2	1:A:178:GLY:HA2	2.00	0.44
1:B:239:GLY:H	2:B:1:OJ8:HO14	1.66	0.44
1:B:105:TRP:CH2	1:B:109:LYS:HE2	2.53	0.44
1:B:212:LYS:HG3	1:B:545:LEU:HD11	2.00	0.43
1:B:139:VAL:O	1:B:181:PRO:HA	2.19	0.43
1:A:244:PHE:HZ	1:A:491:VAL:HA	1.84	0.42
1:A:237:ASP:HA	1:A:241:SER:HB2	2.01	0.42
1:B:55:MET:HG2	1:B:101:LEU:HD11	2.02	0.42
1:B:237:ASP:HA	1:B:241:SER:HB2	2.01	0.42
1:B:328:GLY:HA2	1:B:361:ILE:O	2.19	0.42
1:A:55:MET:HG2	1:A:101:LEU:HD11	2.02	0.41
1:A:376:SER:OG	1:A:499:CYS:HB2	2.21	0.41
1:A:228:GLY:HA2	4:A:951:HOH:O	2.21	0.41
1:A:459:ILE:O	1:A:463:LYS:HG3	2.21	0.40
1:A:384:GLY:HA2	1:A:436:MET:O	2.21	0.40
1:A:156:LEU:HB3	1:A:158:LEU:HD23	2.03	0.40
1:B:244:PHE:HZ	1:B:491:VAL:HA	1.86	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	Perce	ntiles
1	A	551/573~(96%)	539 (98%)	12 (2%)	0	100	100
1	В	551/573~(96%)	538 (98%)	13 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Perce	${f ntiles}$
All	All	1102/1146 (96%)	1077 (98%)	25 (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	Outliers	Percentiles		
1	A	471/487 (97%)	458 (97%)	13 (3%)	43 36		
1	В	471/487 (97%)	460 (98%)	11 (2%)	50 45		
All	All	942/974 (97%)	918 (98%)	24 (2%)	46 41		

All (24) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	51	SER
1	A	64	LEU
1	A	143	GLU
1	A	158	LEU
1	A	184	HIS
1	A	302	LEU
1	A	352	ARG
1	A	400	CYS
1	A	420	LEU
1	A	421	LEU
1	A	463	LYS
1	A	472	THR
1	A	563	ARG
1	В	119	THR
1	В	123	THR
1	В	158	LEU
1	В	184	HIS
1	В	400	CYS
1	В	420	LEU
1	В	425	LEU

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Mol	Chain	Res	Type
1	В	472	THR
1	В	563	ARG
1	В	575	GLN
1	В	576	LYS

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	46	GLN
1	A	334	ASN
1	A	351	GLN
1	A	482	ASN
1	A	541	ASN
1	В	351	GLN
1	В	466	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 carbohydrates in this entry.

5.6 Ligand geometry (i)

Of 3 ligands modelled in this entry, 1 is monoatomic - leaving 2 for Mogul analysis.

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	Mal Thurs Chair Dag I:		Link	Bond lengths			Bond angles			
MIOI	Type	Chain	m Res	Link	Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	OJ8	A	1	1	31,34,34	1.86	9 (29%)	38,47,47	1.53	6 (15%)
2	OJ8	В	1	1	31,34,34	1.96	12 (38%)	38,47,47	1.65	7 (18%)

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.

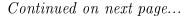
\mathbf{Mol}	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	OJ8	A	1	1	=	0/8/25/25	0/5/5/5
2	OJ8	В	1	1	-	0/8/25/25	0/5/5/5

All (21) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	$\operatorname{Observed}(\text{\AA})$	Ideal(A)
2	A	1	OJ8	CBA-CAZ	-4.85	1.38	1.49
2	В	1	OJ8	CBA-CAZ	-3.57	1.41	1.49
2	В	1	OJ8	CAL-CAK	3.27	1.44	1.38
2	В	1	OJ8	CAK-CAW	3.22	1.45	1.38
2	В	1	OJ8	CAF-CAJ	3.08	1.45	1.38
2	В	1	OJ8	CAL-CAX	2.97	1.44	1.39
2	A	1	OJ8	CAL-CAK	2.93	1.44	1.38
2	A	1	OJ8	CAY-CAX	2.78	1.45	1.40
2	В	1	OJ8	CAZ-NAR	2.74	1.40	1.35
2	В	1	OJ8	CAF-CAC	2.64	1.45	1.38
2	A	1	OJ8	CAF-CAJ	2.44	1.44	1.38
2	A	1	OJ8	CAI-CAV	2.42	1.43	1.38
2	A	1	OJ8	CAK-CAW	2.38	1.43	1.38
2	В	1	OJ8	CAM-CBA	-2.30	1.34	1.37
2	В	1	OJ8	OAT-CAV	-2.29	1.34	1.39
2	В	1	OJ8	CAY-CAX	2.26	1.44	1.40
2	A	1	OJ8	CAJ-CAZ	2.21	1.44	1.38
2	A	1	OJ8	CAD-CAH	2.16	1.43	1.38
2	В	1	OJ8	CAI-CAV	2.11	1.42	1.38
2	В	1	OJ8	CAD-CAH	2.08	1.43	1.38
2	A	1	OJ8	CAD-CAB	2.02	1.43	1.38

All (13) bond angle outliers are listed below:

\mathbf{Mol}	Chain	${ m Res}$	Type	${f Atoms}$	${f Z}$	$\operatorname{Observed}({}^o)$	$\operatorname{Ideal}(^{o})$
2	A	1	OJ8	CAG-NAR-CAZ	4.50	123.54	117.23
2	В	1	OJ8	CAG-NAR-CAZ	4.19	123.11	117.23





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Mol	Chain	Res	Type	${f Atoms}$	\mathbf{Z}	$\operatorname{Observed}(^{o})$	$\mathbf{Ideal}(^o)$
2	В	1	OJ8	CAK-CAL-CAX	-3.86	116.30	121.39
2	В	1	OJ8	CAW-OAT-CAV	3.10	126.05	118.80
2	A	1	OJ8	CAK-CAL-CAX	-3.05	117.37	121.39
2	A	1	OJ8	CAW-OAT-CAV	3.02	125.86	118.80
2	В	1	OJ8	CAC-CAG-NAR	-2.66	119.08	123.43
2	A	1	OJ8	CAC-CAG-NAR	-2.58	119.21	123.43
2	В	1	OJ8	CAW-CAN-CAY	-2.56	116.92	120.47
2	A	1	OJ8	CAB-CAD-CAH	-2.53	116.33	120.19
2	В	1	OJ8	CAN-CAY-CAX	2.43	122.04	118.85
2	A	1	OJ8	CAP-C12-CAQ	-2.29	106.45	109.35
2	В	1	OJ8	CAB-CAD-CAH	-2.17	116.88	120.19

There are no chirality outliers.

There are no torsion outliers.

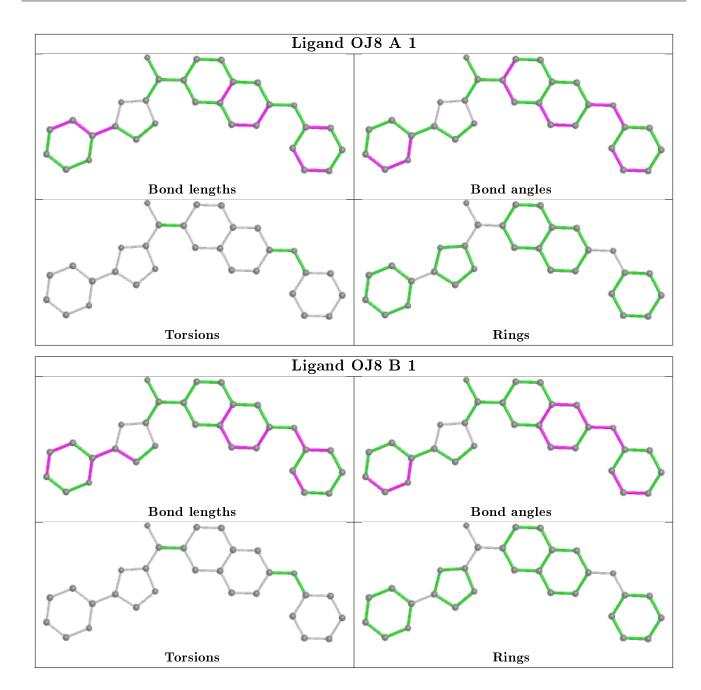
There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	В	1	OJ8	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.





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	${f Analysed}$	<RSRZ $>$	$\# \mathrm{RSRZ} {>} 2$		$\mathbf{OWAB}(\mathbf{\mathring{A}}^2)$	Q < 0.9
1	A	542/573~(94%)	-0.47	4 (0%) 8	88	12, 22, 49, 72	0
1	В	547/573~(95%)	-0.47	4 (0%) 8	87 88	12, 20, 41, 100	0
All	All	1089/1146~(95%)	-0.47	8 (0%) 8	88	12, 20, 46, 100	0

All (8) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	В	579	SER	9.0
1	A	64	LEU	3.4
1	В	578	PRO	3.2
1	A	425	LEU	3.0
1	В	417	LEU	2.7
1	A	68	ASP	2.5
1	A	69	LEU	2.2
1	В	575	GLN	2.1

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 carbohydrates in this entry.

6.4 Ligands (i)

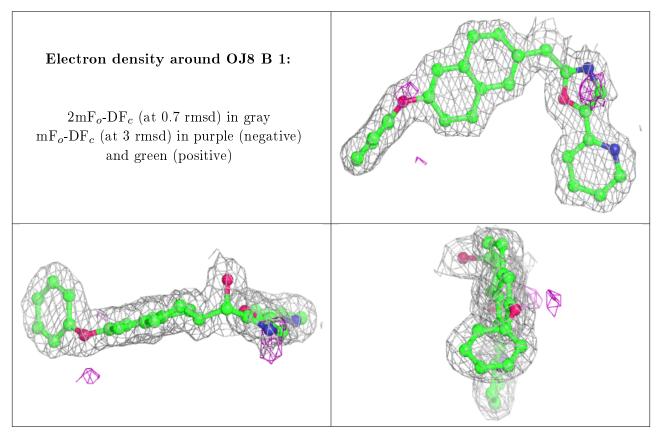
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum,



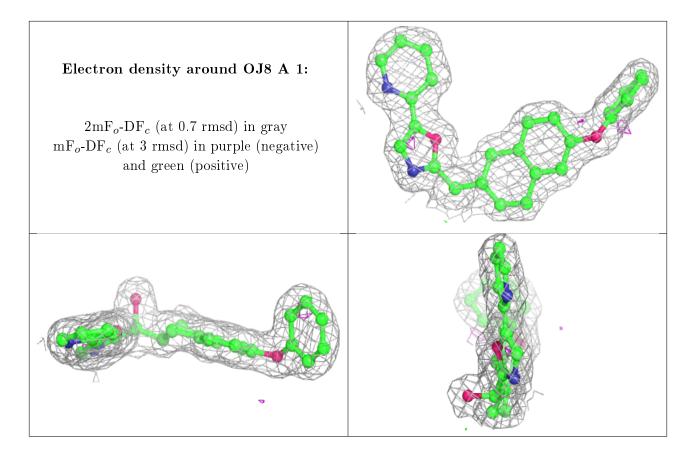
median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	$\operatorname{B-factors}(\AA^2)$	Q < 0.9
2	OJ8	В	1	30/30	0.97	0.09	12,19,24,28	0
2	OJ8	A	1	30/30	0.98	0.09	14,18,21,26	0
3	CL	A	2	1/1	0.98	0.07	21,21,21,21	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.







6.5 Other polymers (i)

There are no such residues in this entry.

