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wwPDB X-ray Structure Validation Summary Report (i)

Oct 5, 2024 – 12:53 pm BST

PDB ID	:	4AQC
Title	:	Triazolopyridine-based Inhibitor of Janus Kinase 2
Authors	:	Dugan, B.J.; Gingrich, D.E.; Mesaros, E.F.; Milkiewicz, K.L.; Curry, M.A.; Zulli, A.L.; Dobrzanski, P.; Serdikoff, C.; Jan, M.; Angeles, T.S.; Albom, M.S.; Mason, J.L.; Aimone, L.D.; Meyer, S.L.; Huang, Z.; Wells-Knecht, K.J.; Ator, M.A.; Ruggeri, B.A.; Dorsey, B.D.
Deposited on	:	2012-04-16
Resolution	:	1.90 Å(reported)

The following versions of software and data (see references ①) were used in the production of this report:

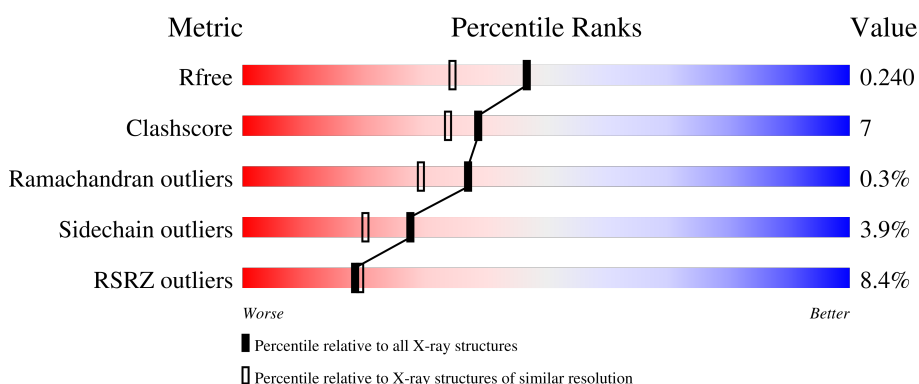|		
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

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 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	Percentile Ranks	Value
Rfree		0.240
Clashscore		7
Ramachandran outliers		0.3%
Sidechain outliers		3.9%
RSRZ outliers		8.4%

Worse　　　　　　　　　　　　　　　　　Better

▮ Percentile relative to all X-ray structures

◫ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	7293 (1.90-1.90)
Clashscore	180529	8090 (1.90-1.90)
Ramachandran outliers	177936	8022 (1.90-1.90)
Sidechain outliers	177891	8022 (1.90-1.90)
RSRZ outliers	164620	7292 (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 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	301	7% / 81% / 14% · ·
1	B	301	9% / 80% / 17% · ·

2 Entry composition ⓘ

There are 4 unique types of molecules in this entry. The entry contains 5525 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 TYROSINE-PROTEIN KINASE JAK2.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	291	Total	C	N	O	P	S	0	8	0
			2466	1566	434	449	2	15			
1	B	297	Total	C	N	O	P	S	0	9	0
			2528	1602	444	465	2	15			

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	832	GLY	-	expression tag	UNP O60674
A	833	ALA	-	expression tag	UNP O60674
A	834	MET	-	expression tag	UNP O60674
B	832	GLY	-	expression tag	UNP O60674
B	833	ALA	-	expression tag	UNP O60674
B	834	MET	-	expression tag	UNP O60674

- Molecule 2 is 8-(4-methylsulfonylphenyl)-N-(4-morpholin-4-ylphenyl)-[1,2,4]triazolo[1,5-a]pyridin-2-amine (three-letter code: 88A) (formula: $C_{23}H_{23}N_5O_3S$).
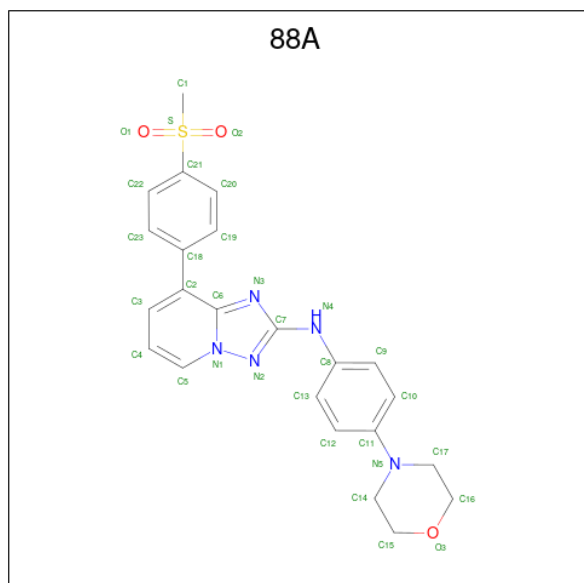
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	S	0	0
			32	23	5	3	1		
2	B	1	Total	C	N	O	S	0	0
			32	23	5	3	1		

- Molecule 3 is SULFATE ION (three-letter code: SO4) (formula: O_4S).

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	O	S	0	0
			5	4	1		
3	B	1	Total	O	S	0	0
			5	4	1		
3	B	1	Total	O	S	0	0
			5	4	1		
3	B	1	Total	O	S	0	0
			5	4	1		
3	B	1	Total	O	S	0	0
			5	4	1		

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	227	Total	O	0	0
			227	227		
4	B	215	Total	O	0	0
			215	215		

3 Residue-property plots ⓘ

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: TYROSINE-PROTEIN KINASE JAK2
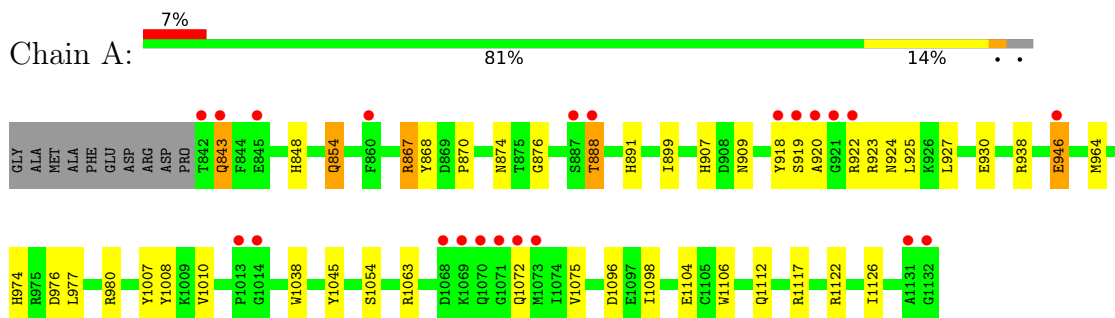
• Molecule 1: TYROSINE-PROTEIN KINASE JAK2
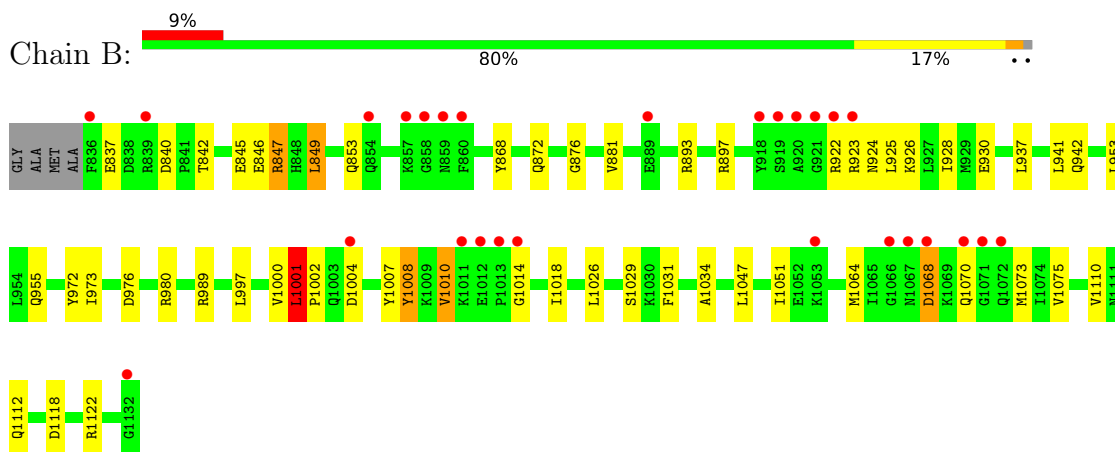
4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 41	Depositor
Cell constants a, b, c, α, β, γ	111.68Å 111.68Å 70.42Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	29.79 – 1.90 29.79 – 1.90	Depositor EDS
% Data completeness (in resolution range)	99.2 (29.79-1.90) 99.1 (29.79-1.90)	Depositor EDS
R_{merge}	0.11	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.91 (at 1.91Å)	Xtriage
Refinement program	REFMAC 5.5.0090D	Depositor
R, R_{free}	0.176 , 0.217 0.202 , 0.240	Depositor DCC
R_{free} test set	3420 reflections (5.04%)	wwPDB-VP
Wilson B-factor (Å^2)	26.5	Xtriage
Anisotropy	0.253	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 36.0	EDS
L-test for twinning[2]	$< |L| > = 0.47, < L^2 > = 0.29$	Xtriage
Estimated twinning fraction	0.046 for h,-k,-l	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	5525	wwPDB-VP
Average B, all atoms (Å^2)	41.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.67% of the height of the origin peak. No significant pseudotranslation is detected.*

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[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: PTR, SO4, 88A

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	0.65	1/2507 (0.0%)	0.74	1/3366 (0.0%)
1	B	0.65	0/2566	0.71	1/3447 (0.0%)
All	All	0.65	1/5073 (0.0%)	0.72	2/6813 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	1045	TYR	CD2-CE2	-5.53	1.31	1.39

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	867	ARG	NE-CZ-NH2	-5.90	117.35	120.30
1	B	1001	LEU	CA-CB-CG	5.09	127.01	115.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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	2466	0	2481	27	0
1	B	2528	0	2514	39	0
2	A	32	0	23	2	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	B	32	0	23	2	0
3	A	5	0	0	0	0
3	B	20	0	0	0	1
4	A	227	0	0	10	1
4	B	215	0	0	8	0
All	All	5525	0	5041	68	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 7.

The worst 5 of 68 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:1112:GLN:NE2	4:A:2205:HOH:O	1.74	1.10
1:B:842:THR:HG21	4:B:1992:HOH:O	1.53	1.07
4:A:2194:HOH:O	1:B:1122[B]:ARG:NH2	1.99	0.93
1:A:1075:VAL:HG23	4:A:2179:HOH:O	1.69	0.92
1:B:1112:GLN:OE1	4:B:2190:HOH:O	1.92	0.87

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)
3:B:2002:SO4:O4	4:A:2134:HOH:O[4_574]	2.13	0.07

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	295/301 (98%)	286 (97%)	8 (3%)	1 (0%)	37	29
1	B	302/301 (100%)	295 (98%)	6 (2%)	1 (0%)	37	29

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
All	All	597/602 (99%)	581 (97%)	14 (2%)	2 (0%)	37	29

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	919	SER
1	B	837	GLU

5.3.2 Protein sidechains ⓘ

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	271/270 (100%)	261 (96%)	10 (4%)	29	22
1	B	277/270 (103%)	266 (96%)	11 (4%)	27	19
All	All	548/540 (102%)	527 (96%)	21 (4%)	27	21

5 of 21 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	989	ARG
1	B	1026	LEU
1	B	1068	ASP
1	B	1029	SER
1	B	1010	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 17 such sidechains are listed below:

Mol	Chain	Res	Type
1	B	1070	GLN
1	B	1125	GLN
1	B	843	GLN
1	B	853	GLN
1	B	885	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

4 non-standard protein/DNA/RNA residues 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	#$|Z| > 2$
1	PTR	B	1007	1	15,16,17	1.94	2 (13%)	19,22,24	0.80	0
1	PTR	A	1008	1	15,16,17	2.07	1 (6%)	19,22,24	0.90	1 (5%)
1	PTR	B	1008	1	15,16,17	1.94	1 (6%)	19,22,24	1.03	2 (10%)
1	PTR	A	1007	1	15,16,17	1.89	1 (6%)	19,22,24	0.83	1 (5%)

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
1	PTR	B	1007	1	-	0/10/11/13	0/1/1/1
1	PTR	A	1008	1	-	0/10/11/13	0/1/1/1
1	PTR	B	1008	1	-	0/10/11/13	0/1/1/1
1	PTR	A	1007	1	-	0/10/11/13	0/1/1/1

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	1008	PTR	OH-CZ	-7.77	1.23	1.40
1	B	1008	PTR	OH-CZ	-7.01	1.24	1.40
1	A	1007	PTR	OH-CZ	-6.99	1.24	1.40
1	B	1007	PTR	OH-CZ	-6.85	1.25	1.40
1	B	1007	PTR	P-OH	2.51	1.63	1.59

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	1008	PTR	O2P-P-OH	2.54	113.19	105.24
1	A	1007	PTR	O3P-P-OH	2.46	112.93	105.24
1	B	1008	PTR	P-OH-CZ	2.32	131.20	123.75
1	A	1008	PTR	O2P-P-OH	2.20	112.11	105.24

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
1	B	1008	PTR	1	0

5.5   Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6   Ligand geometry (i)

7 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	88A	A	2001	-	32,36,36	1.13	1 (3%)	41,52,52	1.50	5 (12%)
3	SO4	B	2004	-	4,4,4	0.25	0	6,6,6	0.32	0
3	SO4	B	2005	-	4,4,4	0.11	0	6,6,6	0.17	0
2	88A	B	2001	-	32,36,36	1.21	3 (9%)	41,52,52	1.26	4 (9%)
3	SO4	B	2002	-	4,4,4	0.17	0	6,6,6	0.40	0
3	SO4	B	2003	-	4,4,4	0.16	0	6,6,6	0.17	0
3	SO4	A	2002	-	4,4,4	0.14	0	6,6,6	0.25	0

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	88A	A	2001	-	-	5/16/26/26	0/5/5/5
2	88A	B	2001	-	-	4/16/26/26	0/5/5/5

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	2001	88A	C8-N4	-3.62	1.32	1.40
2	B	2001	88A	C8-N4	-2.79	1.34	1.40
2	B	2001	88A	C1-S	2.38	1.84	1.75
2	B	2001	88A	C21-S	2.35	1.79	1.77

The worst 5 of 9 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	2001	88A	C16-C17-N5	4.32	117.99	110.02
2	A	2001	88A	O1-S-O2	3.31	123.61	117.92
2	B	2001	88A	C2-C6-N1	-3.17	117.79	121.78
2	A	2001	88A	O2-S-C1	-2.98	104.21	108.49
2	B	2001	88A	C14-N5-C11	2.93	126.01	118.09

There are no chirality outliers.

5 of 9 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	2001	88A	C19-C18-C2-C3
2	A	2001	88A	C23-C18-C2-C3
2	B	2001	88A	C19-C18-C2-C3
2	A	2001	88A	C19-C18-C2-C6
2	B	2001	88A	C23-C18-C2-C3

There are no ring outliers.

3 monomers are involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	2001	88A	2	0
2	B	2001	88A	2	0
3	B	2002	SO4	0	1

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 88A A 2001

Bond lengths

Bond angles

Torsions

Rings

Ligand 88A B 2001

Bond lengths

Bond angles

Torsions

Rings
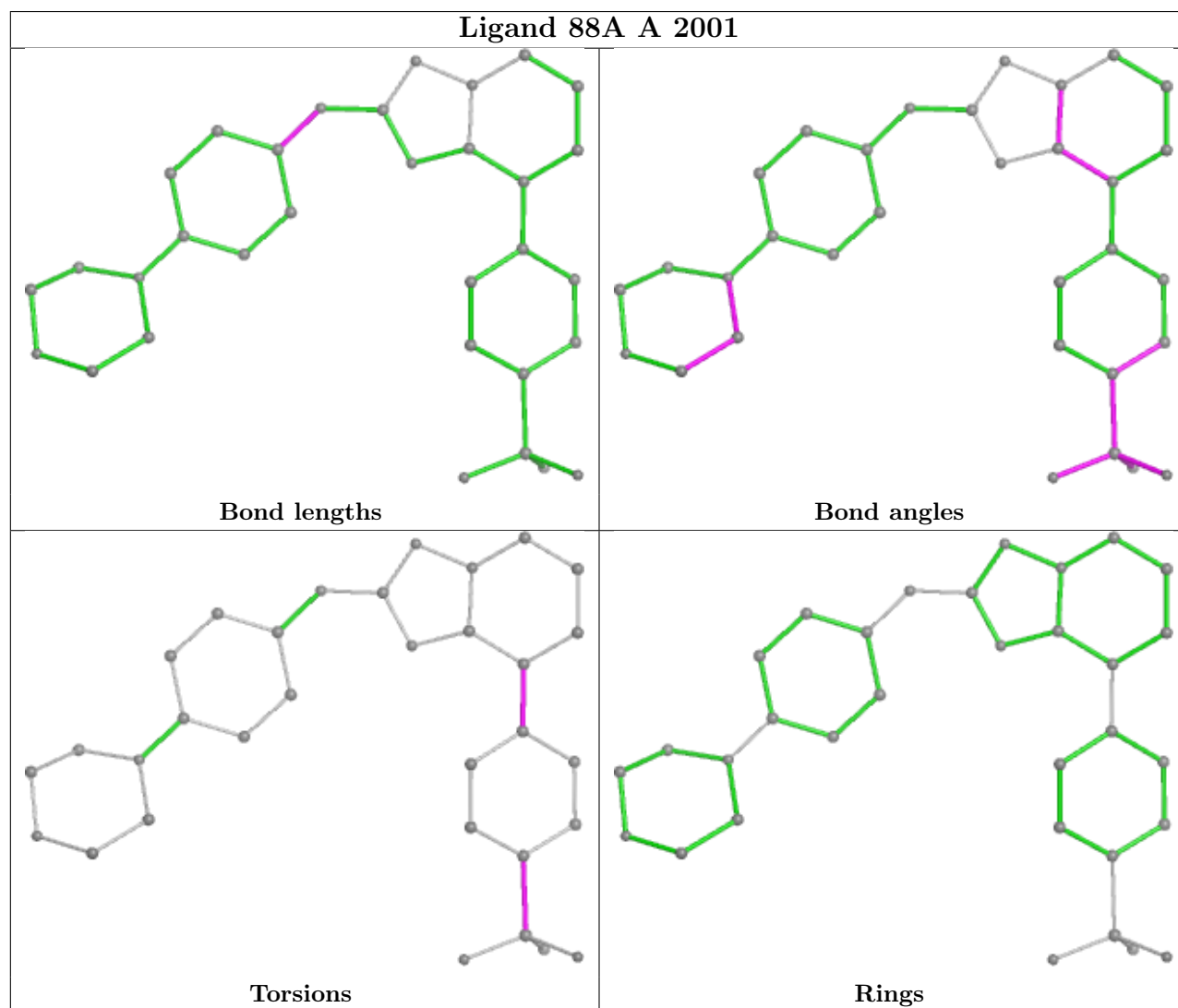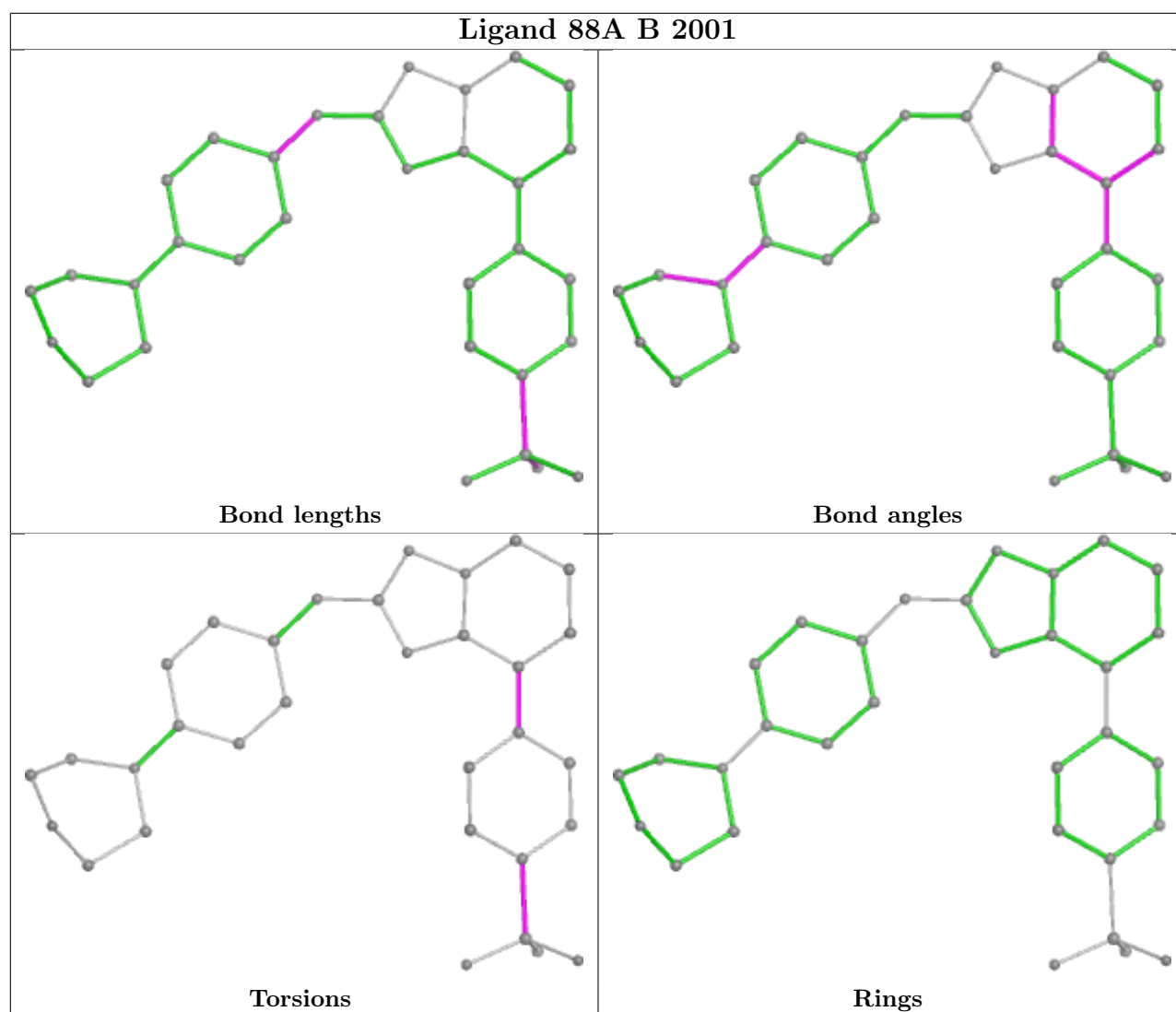
5.7 Other polymers ⓘ

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, 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(Å²)	Q<0.9
1	A	289/301 (96%)	0.34	22 (7%)	21	22	14, 37, 72, 101	11 (3%)
1	B	295/301 (98%)	0.40	27 (9%)	16	17	17, 39, 69, 93	10 (3%)
All	All	584/602 (97%)	0.37	49 (8%)	18	19	14, 38, 70, 101	21 (3%)

The worst 5 of 49 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	1072	GLN	6.4
1	B	836	PHE	6.1
1	A	920	ALA	4.9
1	B	1013	PRO	4.8
1	A	919	SER	4.8

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

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(Å²)	Q<0.9
1	PTR	B	1008	16/17	0.91	0.12	37,56,69,72	0
1	PTR	A	1008	16/17	0.92	0.11	29,48,64,66	0
1	PTR	B	1007	16/17	0.93	0.10	37,54,70,73	0
1	PTR	A	1007	16/17	0.97	0.07	30,36,52,54	0

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

WORLDWIDE
wwPDB
PROTEIN DATA BANK

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($Å^2$)	Q<0.9
3	SO4	B	2005	5/5	0.59	0.17	108,108,108,108	0
3	SO4	B	2002	5/5	0.84	0.12	79,79,80,82	0
3	SO4	A	2002	5/5	0.89	0.12	77,77,77,77	0
3	SO4	B	2004	5/5	0.91	0.12	64,65,67,69	0
3	SO4	B	2003	5/5	0.91	0.08	78,78,79,79	0
2	88A	B	2001	32/32	0.94	0.09	28,37,54,55	0
2	88A	A	2001	32/32	0.97	0.07	22,27,41,43	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 88A B 2001:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)
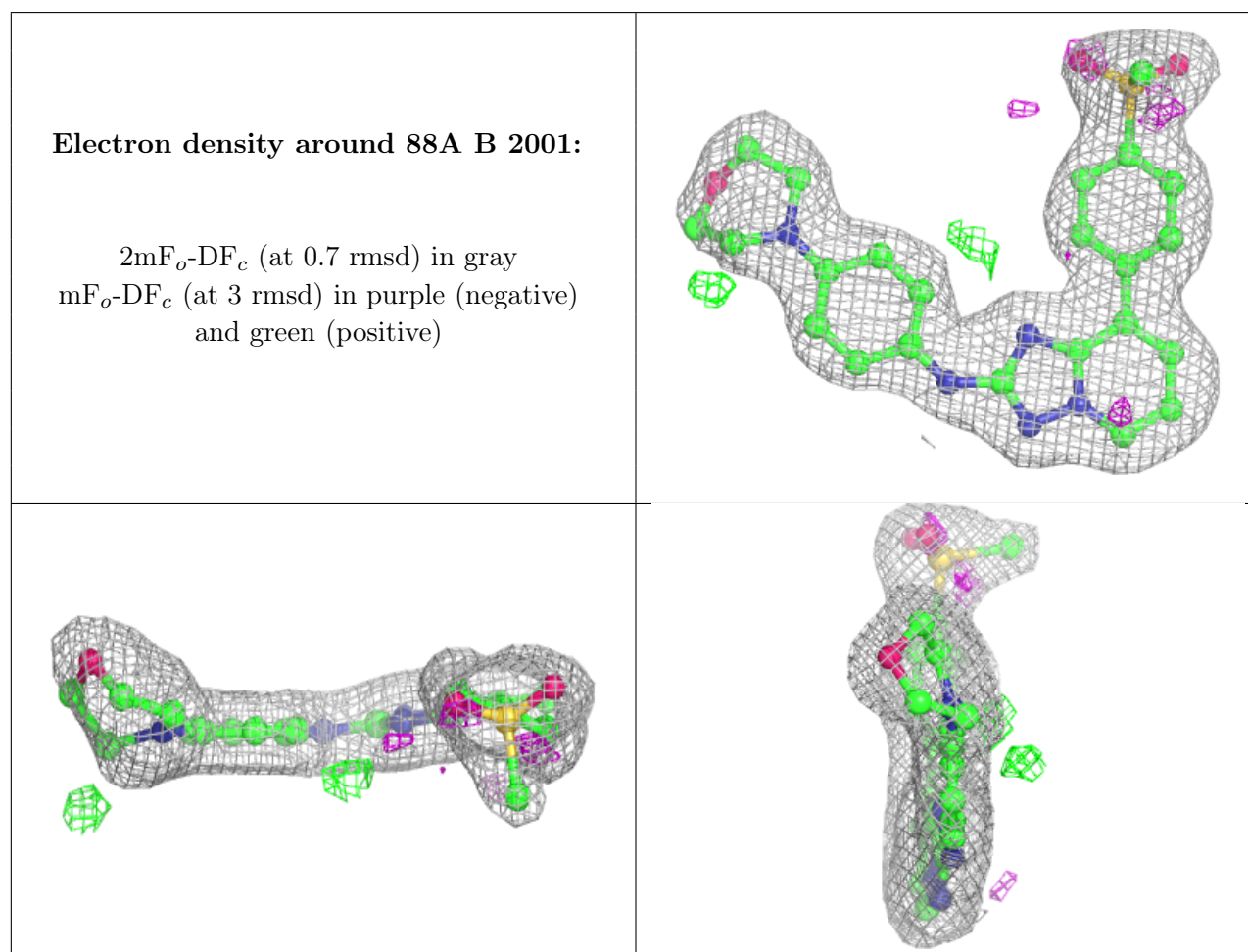
Electron density around 88A A 2001:

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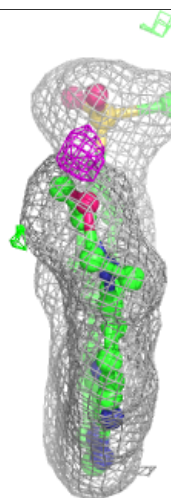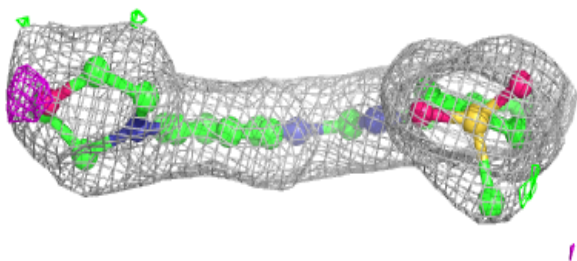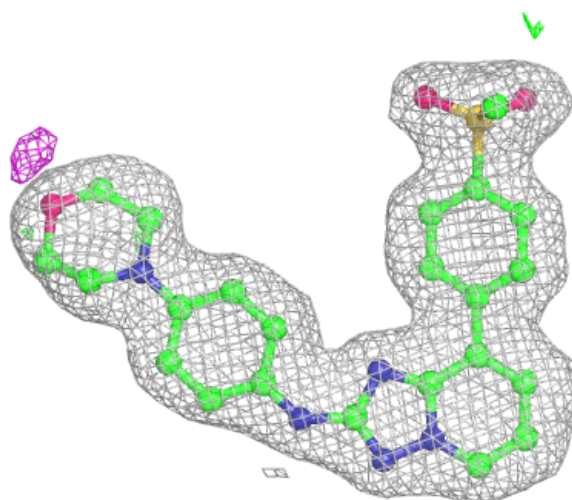
6.5 Other polymers (i)

There are no such residues in this entry.