WORLDWIDE PDB
PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report (i)

Dec 12, 2024 – 04:15 PM EST

PDB ID : 7G3H

Title : Crystal Structure of rat Autotaxin in complex with [2-[[(2R)-5-chloro-2,3-dih
ydro-1H-inden-2-yl]amino]pyrimidin-5-yl]-(6-oxa-1-azaspiro[3.3]heptan-1-yl)m
ethanone, i.e. SMILES Clc1ccc2c(c1)C[C@@H](C2)Nc1ncc(cn1)C(=O)N1CC
C21COC2 with IC50=0.0678127 microM

Authors : Stihle, M.; Benz, J.; Hunziker, D.; Pinard, E.; Rudolph, M.G.

Deposited on : 2023-06-05

Resolution : 1.64 Å(reported)

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

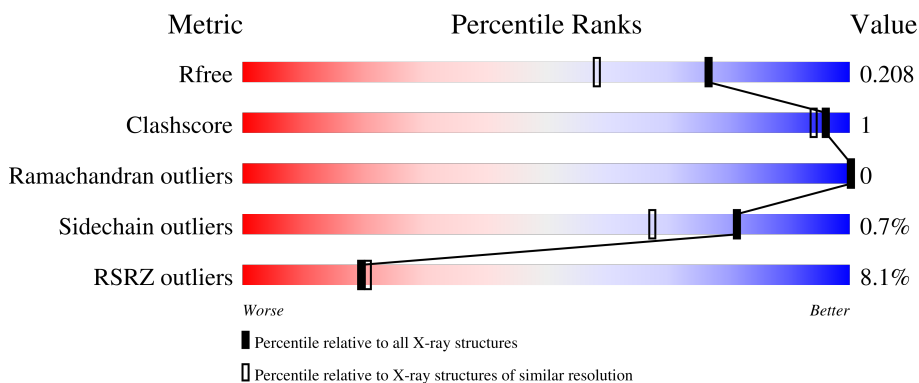|		
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.21
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.004 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.40

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 1.64 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		0.208
Clashscore		1
Ramachandran outliers		0
Sidechain outliers		0.7%
RSRZ outliers		8.1%

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	1015 (1.64-1.64)
Clashscore	180529	1093 (1.64-1.64)
Ramachandran outliers	177936	1077 (1.64-1.64)
Sidechain outliers	177891	1077 (1.64-1.64)
RSRZ outliers	164620	1015 (1.64-1.64)

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	846	8% / 91% · 5%
2	B	8	100%

2 Entry composition ⓘ

There are 10 unique types of molecules in this entry. The entry contains 7328 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 Isoform 2 of Ectonucleotide pyrophosphatase/phosphodiesterase family member 2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	804	6640	4222	1136	1228	54	0	27	0

There are 14 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	53	ALA	ASN	engineered mutation	UNP Q64610
A	410	ALA	ASN	engineered mutation	UNP Q64610
A	591	THR	ARG	engineered mutation	UNP Q64610
A	863	GLY	-	expression tag	UNP Q64610
A	864	GLY	-	expression tag	UNP Q64610
A	865	ARG	-	expression tag	UNP Q64610
A	866	HIS	-	expression tag	UNP Q64610
A	867	HIS	-	expression tag	UNP Q64610
A	868	HIS	-	expression tag	UNP Q64610
A	869	HIS	-	expression tag	UNP Q64610
A	870	HIS	-	expression tag	UNP Q64610
A	871	HIS	-	expression tag	UNP Q64610
A	872	HIS	-	expression tag	UNP Q64610
A	873	HIS	-	expression tag	UNP Q64610

- Molecule 2 is an oligosaccharide called alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
2	B	8	Total 94	C 52	N 2	O 40	0	0	0

- Molecule 3 is ZINC ION (three-letter code: ZN) (formula: Zn).

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

- Molecule 4 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	1	Total 1	Na 1	0	0

- Molecule 5 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	2	Total 2	Ca 2	0	0

- Molecule 6 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

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

- Molecule 7 is POTASSIUM ION (three-letter code: K) (formula: K).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	1	Total 1	K 1	0	0

- Molecule 8 is ACETATE ION (three-letter code: ACT) (formula: $C_2H_3O_2$).

ACT

OXT

O⁻

C

CH3

O

O

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
8	A	1	Total 4	C 2	O 2	0	0
8	A	1	Total 4	C 2	O 2	0	0
8	A	1	Total 4	C 2	O 2	0	0

- Molecule 9 is (2-{[(2S)-5-chloro-2,3-dihydro-1H-inden-2-yl]amino}pyrimidin-5-yl)(6-oxa -1-azaspiro[3.3]heptan-1-yl)methanone (three-letter code: XJ6) (formula: $C_{19}H_{19}ClN_4O_2$) (labeled as "Ligand of Interest" by depositor).

XJ6

C24 C22

O25 C23 C21

N20

C26
C14 C18

N13 C15 O19

N11 C12 C16

HN N17

C9(R)

C8 C10

C6 C5

C7 C4

C2 C3

Cl

CL1
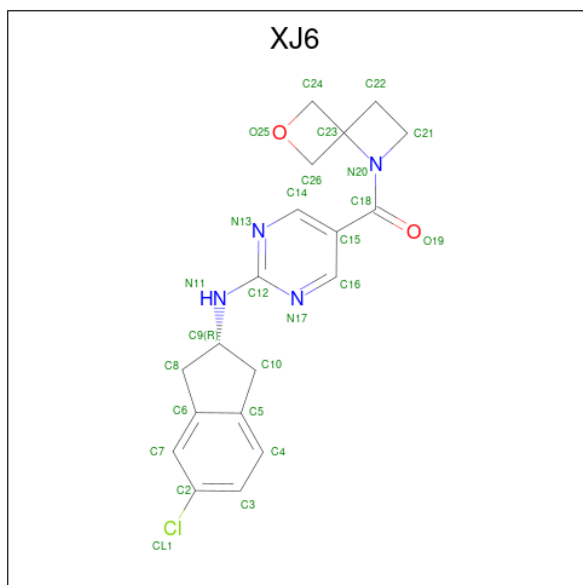
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
9	A	1	Total 52	C 38	Cl 2	N 8	O 4	0	1

- Molecule 10 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
10	A	524	Total 524	O 524	0	0

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: Isoform 2 of Ectonucleotide pyrophosphatase/phosphodiesterase family member 2
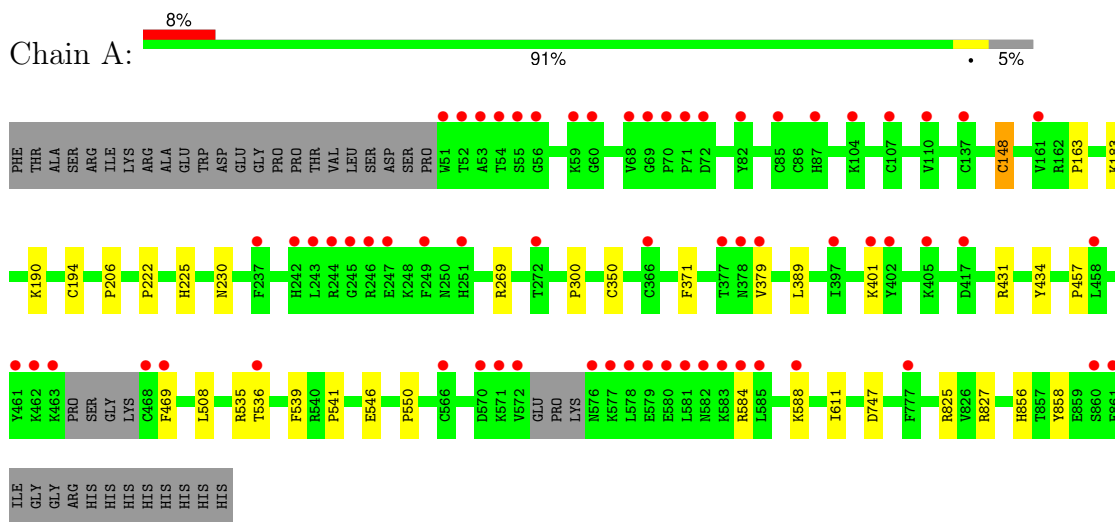
• Molecule 2: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-alpha-D-mannopyran ose-(1-6)-[alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1 -4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranos e

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	83.50Å 91.22Å 119.04Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	72.40 – 1.64 72.40 – 1.64	Depositor EDS
% Data completeness (in resolution range)	87.1 (72.40-1.64) 87.4 (72.40-1.64)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.53 (at 1.63Å)	Xtriage
Refinement program	REFMAC 5.8.0189	Depositor
R, R_{free}	0.169 , 0.198 0.180 , 0.208	Depositor DCC
R_{free} test set	5606 reflections (5.02%)	wwPDB-VP
Wilson B-factor (Å^2)	21.7	Xtriage
Anisotropy	0.019	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 30.6	EDS
L-test for twinning[2]	$< |L| > = 0.49, < L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.97	EDS
Total number of atoms	7328	wwPDB-VP
Average B, all atoms (Å^2)	30.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.58% of the height of the origin peak. No significant pseudotranslation is detected.*

[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5   Model quality ⓘ

5.1   Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section:
MAN, NAG, K, NA, ZN, CL, XJ6, ACT, CA, BMA

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	0.75	1/6895 (0.0%)	0.85	8/9342 (0.1%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	546	GLU	CD-OE1	7.80	1.34	1.25

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	194[A]	CYS	CA-CB-SG	-6.61	102.10	114.00
1	A	194[B]	CYS	CA-CB-SG	-6.61	102.10	114.00
1	A	827	ARG	CG-CD-NE	-6.11	98.98	111.80
1	A	825	ARG	NE-CZ-NH2	-5.92	117.34	120.30
1	A	747	ASP	CB-CG-OD1	5.55	123.29	118.30
1	A	148[A]	CYS	CA-CB-SG	-5.20	104.64	114.00
1	A	148[B]	CYS	CA-CB-SG	-5.20	104.64	114.00
1	A	431	ARG	NE-CZ-NH2	-5.08	117.76	120.30

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	6640	0	6462	13	0
2	B	94	0	79	0	0
3	A	1	0	0	0	0
4	A	1	0	0	0	0
5	A	2	0	0	0	0
6	A	1	0	0	0	0
7	A	1	0	0	0	0
8	A	12	0	9	0	0
9	A	52	0	0	0	0
10	A	524	0	0	1	0
All	All	7328	0	6550	13	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 (13) 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:230:ASN:ND2	10:A:1001:HOH:O	2.07	0.64
1:A:269:ARG:HB3	1:A:300:PRO:HA	1.86	0.57
1:A:371:PHE:CE1	1:A:457:PRO:HA	2.46	0.51
1:A:148[A]:CYS:SG	1:A:190:LYS:HE3	2.52	0.50
1:A:222:PRO:HA	1:A:225:HIS:CE1	2.48	0.48
1:A:539:PHE:O	1:A:541:PRO:HD3	2.13	0.48
1:A:856:HIS:CD2	1:A:858[A]:TYR:CE1	3.02	0.47
1:A:163:PRO:HB3	1:A:350:CYS:O	2.18	0.44
1:A:206:PRO:HD3	1:A:434:TYR:CE1	2.54	0.42
1:A:550:PRO:HB2	1:A:611:ILE:HG12	2.03	0.41
1:A:508[A]:LEU:HD23	1:A:508[A]:LEU:HA	1.92	0.41
1:A:584:ARG:O	1:A:588:LYS:HG2	2.21	0.41
1:A:535:ARG:HG2	1:A:536:THR:HG23	2.03	0.40

There are no symmetry-related clashes.

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	825/846 (98%)	804 (98%)	21 (2%)	0	100 100

There are no Ramachandran outliers to report.

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	755/765 (99%)	750 (99%)	5 (1%)	81 67

All (5) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	183	LYS
1	A	379	VAL
1	A	389	LEU
1	A	401	LYS
1	A	469	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	398	ASN
1	A	436	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

8 monosaccharides 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	NAG	B	1	2,1	14,14,15	1.05	1 (7%)	17,19,21	1.10	1 (5%)
2	NAG	B	2	2	14,14,15	0.93	0	17,19,21	1.56	1 (5%)
2	BMA	B	3	2	11,11,12	0.94	0	15,15,17	1.63	2 (13%)
2	MAN	B	4	2	11,11,12	1.04	0	15,15,17	1.23	2 (13%)
2	MAN	B	5	2	11,11,12	0.77	0	15,15,17	1.38	1 (6%)
2	MAN	B	6	2	11,11,12	0.97	0	15,15,17	1.11	2 (13%)
2	MAN	B	7	2	11,11,12	0.62	0	15,15,17	1.67	3 (20%)
2	MAN	B	8	2	11,11,12	0.91	1 (9%)	15,15,17	1.33	3 (20%)

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	NAG	B	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	B	2	2	-	0/6/23/26	0/1/1/1
2	BMA	B	3	2	-	0/2/19/22	0/1/1/1
2	MAN	B	4	2	-	0/2/19/22	0/1/1/1
2	MAN	B	5	2	-	0/2/19/22	0/1/1/1
2	MAN	B	6	2	-	0/2/19/22	0/1/1/1
2	MAN	B	7	2	-	2/2/19/22	0/1/1/1
2	MAN	B	8	2	-	0/2/19/22	0/1/1/1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	1	NAG	C1-C2	-2.65	1.48	1.52
2	B	8	MAN	C2-C3	2.34	1.56	1.52

All (15) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	3	BMA	C1-O5-C5	4.77	118.58	112.19
2	B	7	MAN	C1-C2-C3	4.21	115.77	109.64
2	B	2	NAG	C1-O5-C5	4.04	117.61	112.19
2	B	4	MAN	C1-O5-C5	2.79	115.93	112.19
2	B	7	MAN	O2-C2-C3	-2.74	104.48	110.15
2	B	3	BMA	C1-C2-C3	2.62	113.47	109.64
2	B	7	MAN	O5-C5-C6	2.58	112.68	107.66
2	B	8	MAN	O2-C2-C3	2.35	115.03	110.15
2	B	6	MAN	O5-C5-C6	2.31	112.17	107.66
2	B	8	MAN	C1-O5-C5	2.25	115.21	112.19
2	B	6	MAN	C1-O5-C5	2.15	115.07	112.19
2	B	1	NAG	O4-C4-C5	-2.14	104.05	109.32
2	B	8	MAN	O3-C3-C2	2.13	114.40	110.05
2	B	4	MAN	O5-C5-C6	2.09	111.73	107.66
2	B	5	MAN	O6-C6-C5	-2.07	104.29	111.33

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	7	MAN	O5-C5-C6-O6
2	B	7	MAN	C4-C5-C6-O6

There are no ring outliers.

No monomer is involved in short contacts.

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

| Oligosaccharide Chain B |

Bond lengths

Bond angles

Torsions

Rings
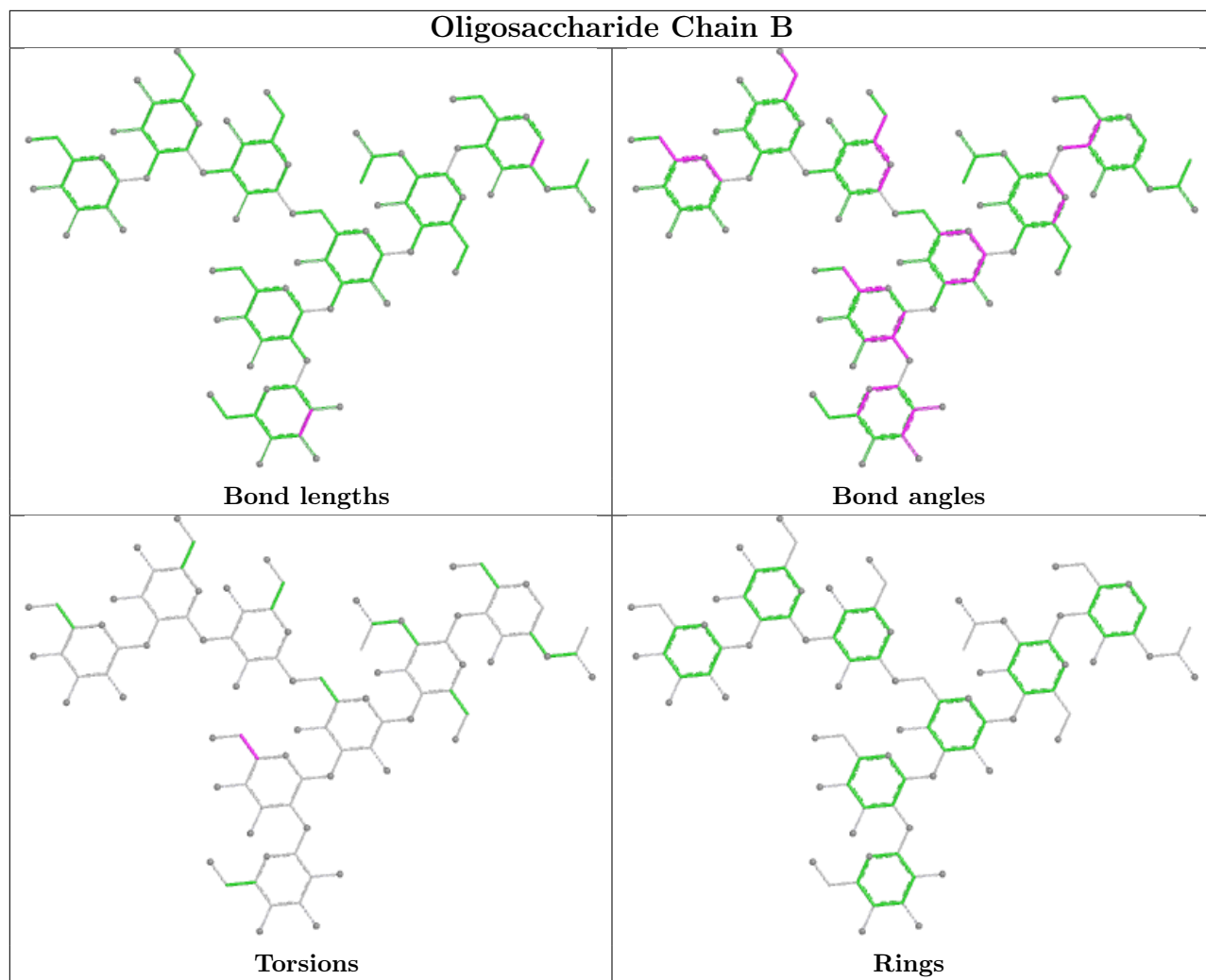
5.6 Ligand geometry ⓘ

Of 11 ligands modelled in this entry, 6 are monoatomic - leaving 5 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	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#$|Z| > 2$	Counts	RMSZ	#$|Z| > 2$
8	ACT	A	909	7	3,3,3	0.99	0	3,3,3	0.92	0
8	ACT	A	907	-	3,3,3	0.73	0	3,3,3	0.85	0
9	XJ6	A	910[B]	-	27,30,30	0.34	0	34,45,45	1.11	2 (5%)
8	ACT	A	908	3	3,3,3	0.77	0	3,3,3	0.71	0

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Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
9	XJ6	A	910[A]	-	27,30,30	0.21	0	34,45,45	1.09	2 (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
9	XJ6	A	910[B]	-	-	2/12/40/40	0/5/5/5
9	XJ6	A	910[A]	-	-	2/12/40/40	0/5/5/5

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
9	A	910[B]	XJ6	O25-C24-C23	-4.37	90.03	91.27
9	A	910[A]	XJ6	O25-C24-C23	-4.08	90.11	91.27
9	A	910[A]	XJ6	O25-C26-C23	-3.84	90.18	91.27
9	A	910[B]	XJ6	O25-C26-C23	-3.56	90.26	91.27

There are no chirality outliers.

All (4) torsion outliers are listed below:

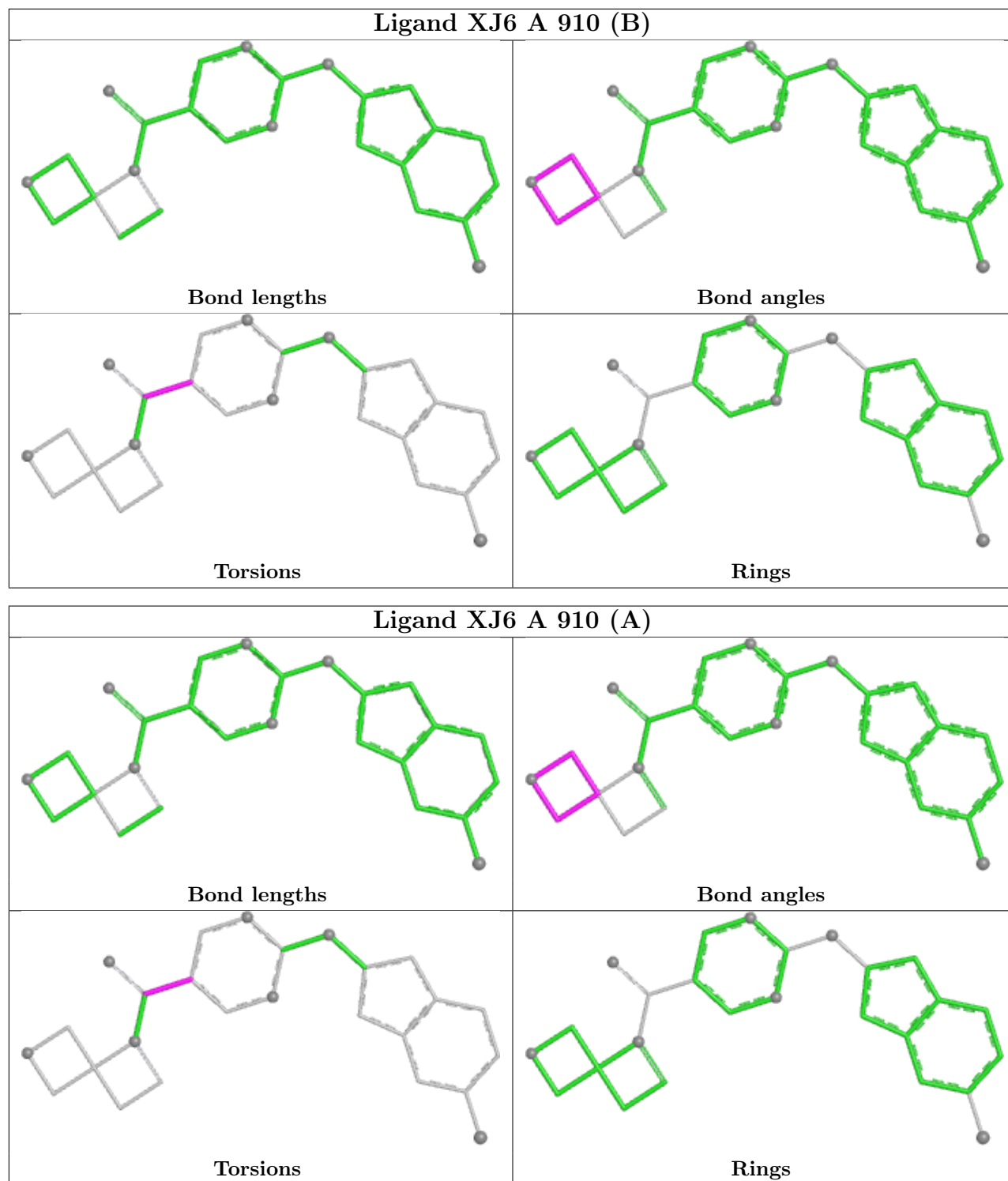| Mol	Chain	Res	Type	Atoms
9	A	910[A]	XJ6	C14-C15-C18-O19
9	A	910[A]	XJ6	C14-C15-C18-N20
9	A	910[B]	XJ6	C14-C15-C18-N20
9	A	910[B]	XJ6	C14-C15-C18-O19

There are no ring outliers.

No monomer is involved in short contacts.

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 XJ6 A 910 (B)

Bond lengths — Bond angles — Torsions — Rings

Ligand XJ6 A 910 (A)

Bond lengths — Bond angles — Torsions — Rings

5.7 Other polymers ⓘ

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 ⓘ

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(Å^2)	Q<0.9
1	A	804/846 (95%)	0.24	65 (8%)	19	20	11, 24, 62, 80	27 (3%)

All (65) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	572	VAL	8.0
1	A	51	TRP	7.2
1	A	578	LEU	6.8
1	A	469	PHE	6.6
1	A	468	CYS	5.7
1	A	71	PRO	5.3
1	A	585	LEU	4.5
1	A	243	LEU	4.5
1	A	461	TYR	4.4
1	A	70	PRO	4.4
1	A	237	PHE	4.1
1	A	581	LEU	4.1
1	A	54	THR	3.9
1	A	463	LYS	3.9
1	A	53	ALA	3.7
1	A	462	LYS	3.5
1	A	68	VAL	3.5
1	A	249	PHE	3.5
1	A	52	THR	3.4
1	A	366	CYS	3.4
1	A	397	ILE	3.4
1	A	378	ASN	3.4
1	A	110	VAL	3.3
1	A	571	LYS	3.3
1	A	55	SER	3.0
1	A	379	VAL	3.0
1	A	247	GLU	2.9

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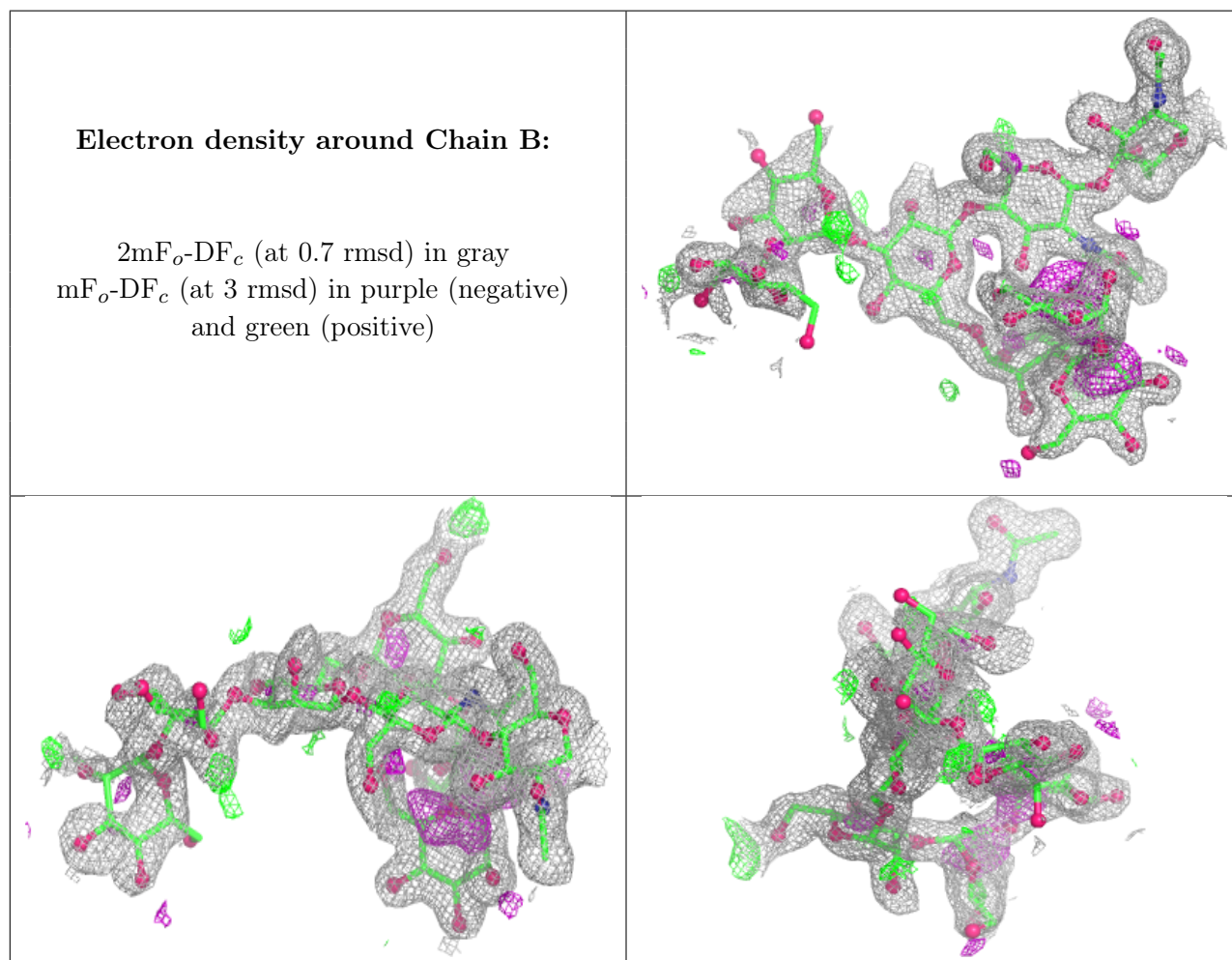| Mol	Chain	Res	Type	RSRZ
1	A	402	TYR	2.8
1	A	242	HIS	2.8
1	A	566	CYS	2.7
1	A	244	ARG	2.7
1	A	584	ARG	2.7
1	A	245	GLY	2.6
1	A	861	GLU	2.6
1	A	377	THR	2.6
1	A	82	TYR	2.6
1	A	56	GLY	2.6
1	A	251	HIS	2.5
1	A	60	GLY	2.5
1	A	579	GLU	2.5
1	A	69	GLY	2.4
1	A	137	CYS	2.4
1	A	417	ASP	2.4
1	A	570	ASP	2.4
1	A	582	ASN	2.3
1	A	59	LYS	2.3
1	A	860	SER	2.3
1	A	72	ASP	2.3
1	A	458	LEU	2.3
1	A	246	ARG	2.3
1	A	161	VAL	2.3
1	A	104	LYS	2.2
1	A	577	LYS	2.2
1	A	777	PHE	2.2
1	A	405	LYS	2.2
1	A	583	LYS	2.2
1	A	401	LYS	2.1
1	A	580	GLU	2.1
1	A	107	CYS	2.1
1	A	272	THR	2.1
1	A	536	THR	2.1
1	A	87	HIS	2.1
1	A	588	LYS	2.1
1	A	85	CYS	2.1
1	A	576	ASN	2.0

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

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

6.3 Carbohydrates ⓘ

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($\mathring{A}^2$)	Q<0.9
2	MAN	B	7	11/12	0.54	0.16	73,80,80,80	0
2	MAN	B	8	11/12	0.64	0.16	42,68,72,75	0
2	BMA	B	3	11/12	0.69	0.14	50,53,60,66	0
2	MAN	B	4	11/12	0.79	0.13	43,52,56,56	0
2	MAN	B	5	11/12	0.80	0.16	39,46,51,61	0
2	MAN	B	6	11/12	0.85	0.15	32,42,45,46	0
2	NAG	B	2	14/15	0.88	0.11	25,31,36,44	0
2	NAG	B	1	14/15	0.96	0.07	15,18,20,21	0

The following is a graphical depiction of the model fit to experimental electron density for oligosaccharide. Each fit is shown from different orientation to approximate a three-dimensional view.
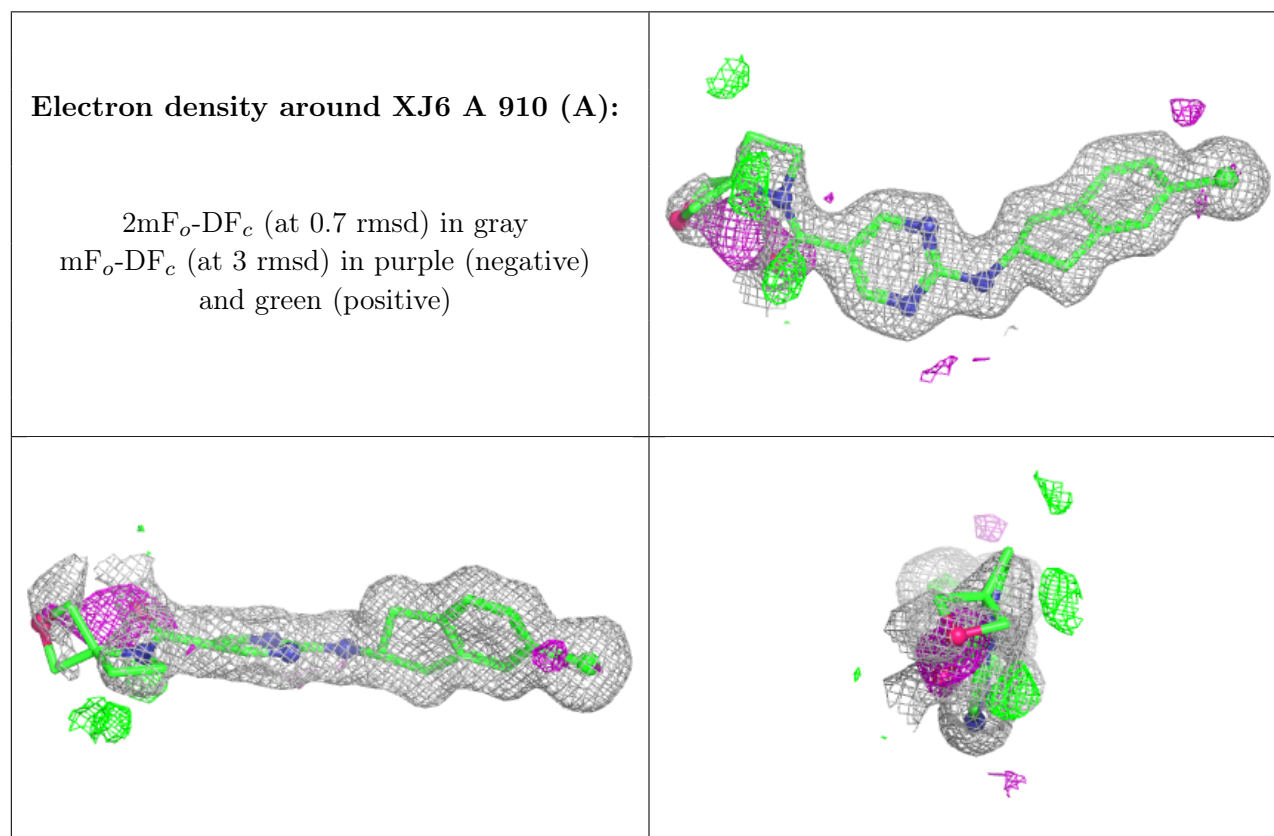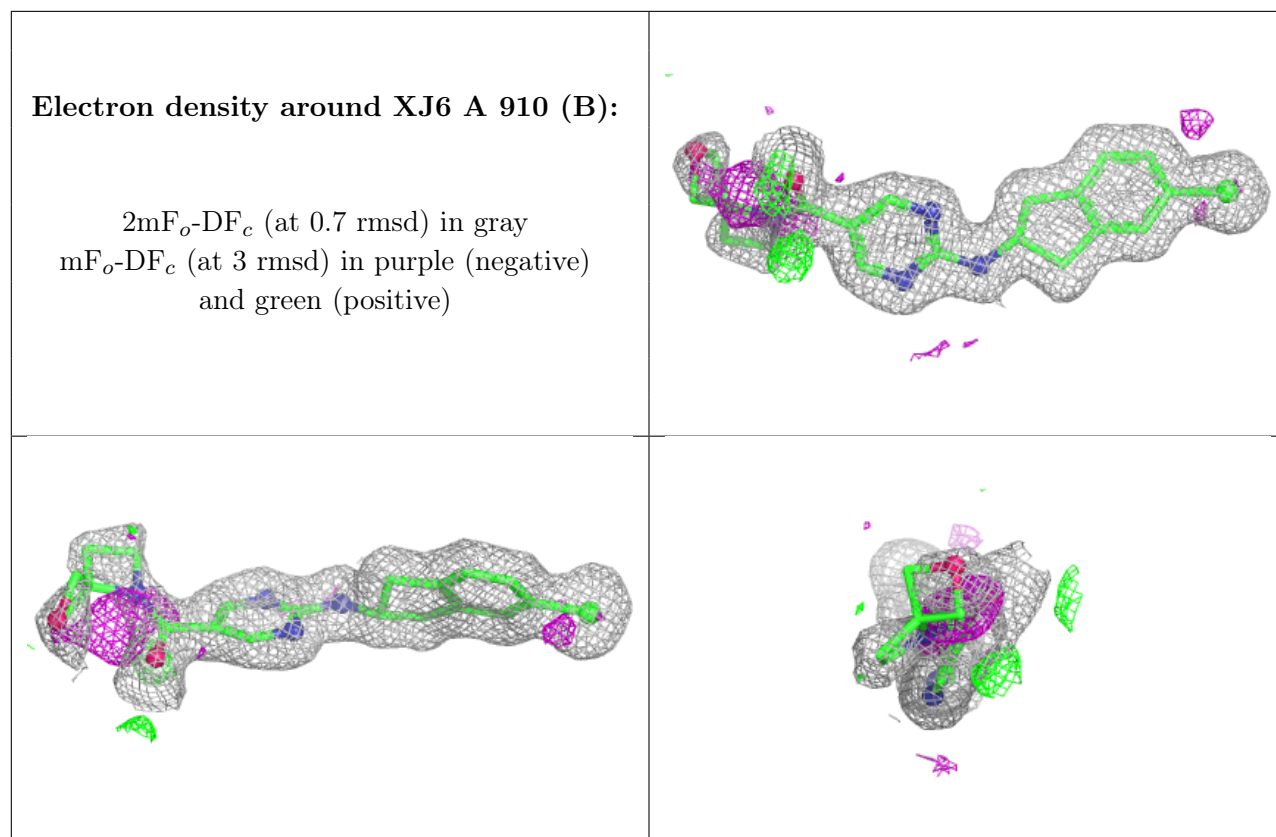

Electron density around Chain B:

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

6.4 Ligands ⓘ

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
8	ACT	A	909	4/4	0.70	0.23	45,51,58,68	0
4	NA	A	902	1/1	0.92	0.09	27,27,27,27	0
9	XJ6	A	910[A]	26/26	0.92	0.12	17,21,40,44	26
9	XJ6	A	910[B]	26/26	0.92	0.12	17,21,40,44	26
8	ACT	A	907	4/4	0.95	0.09	26,33,33,34	0
6	CL	A	904	1/1	0.95	0.09	44,44,44,44	0
8	ACT	A	908	4/4	0.96	0.12	32,46,46,53	0
7	K	A	906	1/1	0.98	0.04	25,25,25,25	0
5	CA	A	903	1/1	0.99	0.02	16,16,16,16	0
5	CA	A	905	1/1	0.99	0.08	24,24,24,24	0
3	ZN	A	901	1/1	0.99	0.02	20,20,20,20	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 XJ6 A 910 (A):

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

Electron density around XJ6 A 910 (B):

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

6.5 Other polymers ⓘ

There are no such residues in this entry.