



wwPDB X-ray Structure Validation Summary Report

Sep 15, 2022 – 07:14 pm BST

PDB ID : 7ZZW
Title : Ligand binding to HDAC2
Authors : Cleasby, A.; Tisi, D.
Deposited on : 2022-05-26
Resolution : 1.73 Å(reported)

This is a wwPDB X-ray Structure Validation Summary Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the  symbol.

The types of validation reports are described at <http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4.02b-467
Mogul : 1.8.4, CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.30
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0267
CCP4 : 7.1.010 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.30

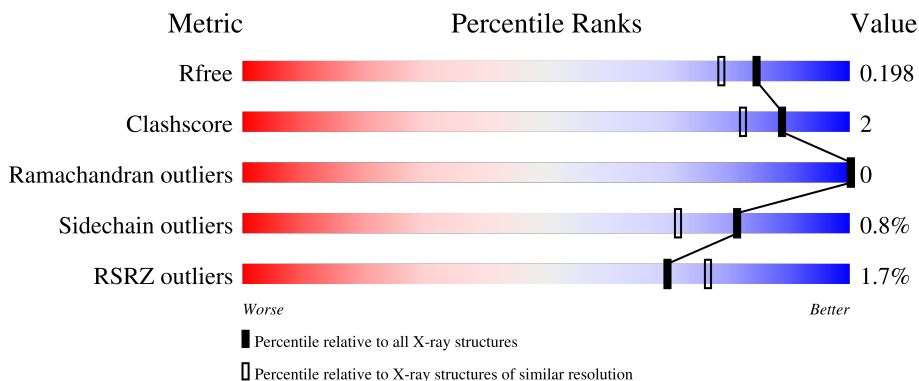
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION




The reported resolution of this entry is 1.73 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	3764 (1.76-1.72)
Clashscore	141614	3923 (1.76-1.72)
Ramachandran outliers	138981	3878 (1.76-1.72)
Sidechain outliers	138945	3878 (1.76-1.72)
RSRZ outliers	127900	3705 (1.76-1.72)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	498	 69% 26%
1	B	498	 69% 5% 26%
1	C	498	 70% 26%

2 Entry composition [i](#)

There are 10 unique types of molecules in this entry. The entry contains 9820 atoms, of which 163 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 Histone deacetylase 2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	367	2990	1913	500	550	27	0	14	0
1	B	368	2979	1905	501	548	25	0	11	0
1	C	367	2970	1900	500	545	25	0	9	0

There are 30 discrepancies between the modelled and reference sequences:

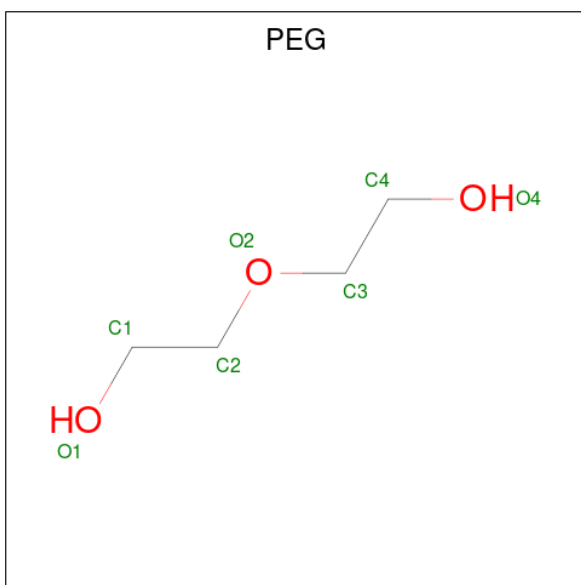
Chain	Residue	Modelled	Actual	Comment	Reference
A	493	GLY	-	expression tag	UNP Q92769
A	494	SER	-	expression tag	UNP Q92769
A	495	SER	-	expression tag	UNP Q92769
A	496	GLY	-	expression tag	UNP Q92769
A	497	HIS	-	expression tag	UNP Q92769
A	498	HIS	-	expression tag	UNP Q92769
A	499	HIS	-	expression tag	UNP Q92769
A	500	HIS	-	expression tag	UNP Q92769
A	501	HIS	-	expression tag	UNP Q92769
A	502	HIS	-	expression tag	UNP Q92769
B	493	GLY	-	expression tag	UNP Q92769
B	494	SER	-	expression tag	UNP Q92769
B	495	SER	-	expression tag	UNP Q92769
B	496	GLY	-	expression tag	UNP Q92769
B	497	HIS	-	expression tag	UNP Q92769
B	498	HIS	-	expression tag	UNP Q92769
B	499	HIS	-	expression tag	UNP Q92769
B	500	HIS	-	expression tag	UNP Q92769
B	501	HIS	-	expression tag	UNP Q92769
B	502	HIS	-	expression tag	UNP Q92769
C	493	GLY	-	expression tag	UNP Q92769
C	494	SER	-	expression tag	UNP Q92769
C	495	SER	-	expression tag	UNP Q92769

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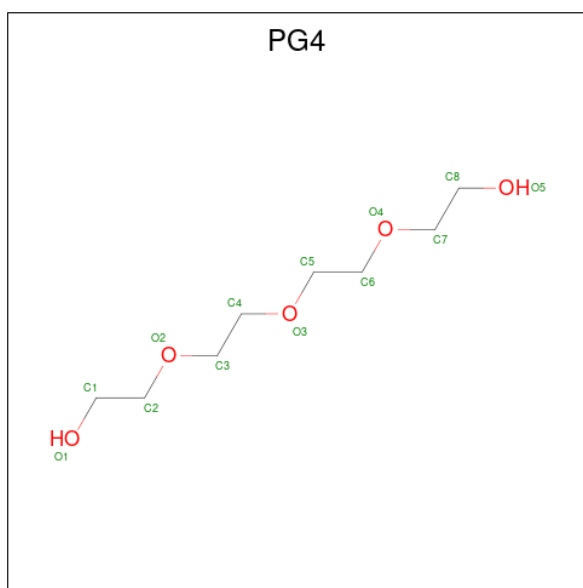
Chain	Residue	Modelled	Actual	Comment	Reference
C	496	GLY	-	expression tag	UNP Q92769
C	497	HIS	-	expression tag	UNP Q92769
C	498	HIS	-	expression tag	UNP Q92769
C	499	HIS	-	expression tag	UNP Q92769
C	500	HIS	-	expression tag	UNP Q92769
C	501	HIS	-	expression tag	UNP Q92769
C	502	HIS	-	expression tag	UNP Q92769

- Molecule 2 is DI(HYDROXYETHYL)ETHER (three-letter code: PEG) (formula: C₄H₁₀O₃).



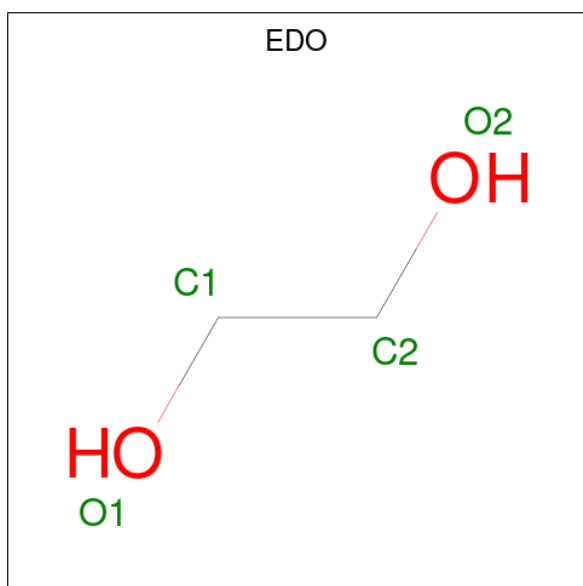
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	
			Total	C	H			O
2	A	1	Total	C	H	O	1	0
			17	4	10	3		
2	A	1	Total	C	H	O	1	0
			17	4	10	3		
2	A	1	Total	C	H	O	1	0
			17	4	10	3		
2	B	1	Total	C	H	O	1	0
			17	4	10	3		
2	B	1	Total	C	H	O	1	0
			17	4	10	3		
2	B	1	Total	C	H	O	1	0
			17	4	10	3		
2	B	1	Total	C	H	O	1	0
			17	4	10	3		
2	C	1	Total	C	H	O	1	0
			17	4	10	3		

- Molecule 3 is TETRAETHYLENE GLYCOL (three-letter code: PG4) (formula: $C_8H_{18}O_5$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	H	O	1	0
			31	8	18	5		
3	C	1	Total	C	H	O	1	0
			31	8	18	5		

- Molecule 4 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: $C_2H_6O_2$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	A	1	Total	C	H	O	1	0
			10	2	6	2		

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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	B	1	Total	C	H	O	1	0
			10	2	6	2		
4	B	1	Total	C	H	O	1	0
			10	2	6	2		
4	C	1	Total	C	H	O	1	0
			10	2	6	2		
4	C	1	Total	C	H	O	1	0
			10	2	6	2		

- Molecule 5 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	1	Total	Zn	0	0
			1	1		
5	B	1	Total	Zn	0	0
			1	1		
5	C	1	Total	Zn	0	0
			1	1		

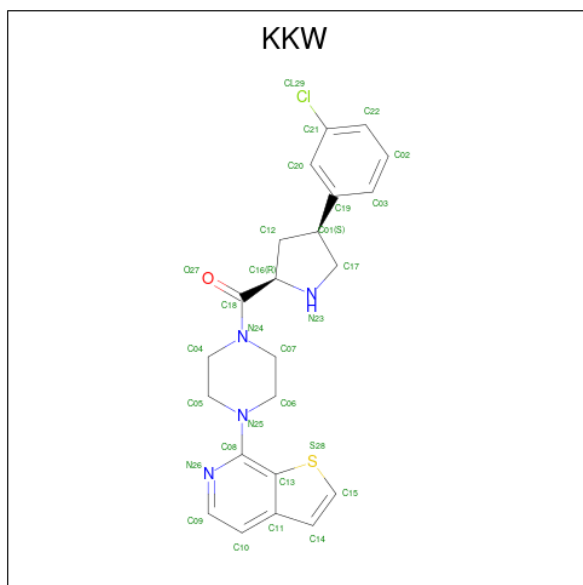
- Molecule 6 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	1	Total	Ca	0	0
			1	1		
6	B	1	Total	Ca	0	0
			1	1		
6	C	1	Total	Ca	0	0
			1	1		

- Molecule 7 is SODIUM ION (three-letter code: NA) (formula: Na).

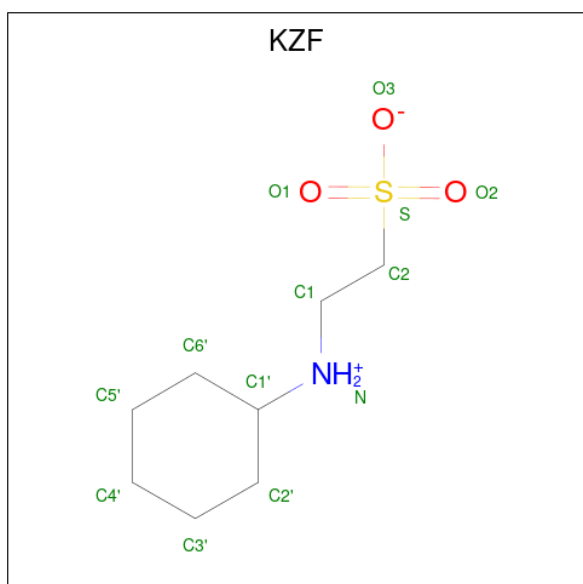
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	1	Total	Na	0	0
			1	1		
7	B	1	Total	Na	0	0
			1	1		
7	C	1	Total	Na	0	0
			1	1		

- Molecule 8 is [(2 {R},4 {S})-4-(3-chlorophenyl)pyrrolidin-2-yl]-(4-thieno[2,3-c]pyridin-7-yl piperazin-1-yl)methanone (three-letter code: KKW) (formula: C₂₂H₂₃ClN₄OS) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf		
			Total	C	Cl	N	O			S	
8	A	1	Total	29	22	1	4	1	1	0	0
8	B	1	Total	29	22	1	4	1	1	0	0
8	C	1	Total	29	22	1	4	1	1	0	0

- Molecule 9 is 2-(cyclohexylazanumyl)ethanesulfonate (three-letter code: KZF) (formula: $C_8H_{17}NO_3S$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	
			Total	C	H	N	O			S
9	A	1	30	8	17	1	3	1	0	0

- Molecule 10 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
10	A	203	Total 203	O 203	0	0
10	B	192	Total 192	O 192	0	0
10	C	112	Total 112	O 112	0	0

ARG
ARG
ASN
VAL
ALA
ASP
HIS
HIS
LYS
LYS
GLY
ALA
LYS
LYS
ALA
ALA
ARG
ILE
GLU
GLU
ASP
LYS
LYS
GLU
THR
THR
GLU
ASP
LYS
LYS
THR
THR
ASP
VAL
VAL
LYS
GLU
GLU
ASP
LYS
LYS
SER
SER
ASP
ASN
GLY
GLU
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THR
THR
ASP
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THR
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SER
SER
GLN
GLN
LEU
SER
SER
ASN
PRO
GLY
GLY
SER
SER

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4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	92.15Å 97.93Å 139.54Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.41 – 1.73 48.37 – 1.73	Depositor EDS
% Data completeness (in resolution range)	99.8 (48.41-1.73) 99.9 (48.37-1.73)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.57 (at 1.73Å)	Xtrriage
Refinement program	REFMAC 5.8.0232	Depositor
R, R_{free}	0.164 , 0.189 0.176 , 0.198	Depositor DCC
R_{free} test set	6751 reflections (5.11%)	wwPDB-VP
Wilson B-factor (Å ²)	24.3	Xtrriage
Anisotropy	0.030	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	(Not available) , (Not available)	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.97	EDS
Total number of atoms	9820	wwPDB-VP
Average B, all atoms (Å ²)	31.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.42% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: KZF, PG4, KKW, CA, ZN, PEG, EDO, NA

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	0.55	0/3088	0.74	1/4168 (0.0%)
1	B	0.55	1/3068 (0.0%)	0.74	1/4142 (0.0%)
1	C	0.52	0/3053	0.68	2/4121 (0.0%)
All	All	0.54	1/9209 (0.0%)	0.72	4/12431 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
1	B	0	2
1	C	0	5
All	All	0	8

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	167	GLU	CD-OE2	-6.78	1.18	1.25

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	269	ASP	CB-CG-OD2	-6.82	112.17	118.30
1	C	181	ASP	CB-CG-OD1	5.64	123.38	118.30
1	A	109	ASP	CB-CG-OD1	5.64	123.38	118.30
1	B	337	ASP	CB-CG-OD1	5.36	123.12	118.30

There are no chirality outliers.

5 of 8 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	39	ARG	Sidechain
1	B	39	ARG	Sidechain
1	B	98	ARG	Sidechain
1	C	39	ARG	Sidechain
1	C	54[A]	ARG	Sidechain

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	2990	0	2893	11	0
1	B	2979	0	2879	13	0
1	C	2970	0	2868	11	0
2	A	21	30	30	0	0
2	B	28	40	40	0	0
2	C	7	10	10	0	0
3	A	13	18	18	0	0
3	C	13	18	18	0	0
4	A	4	6	6	0	0
4	B	8	12	12	0	0
4	C	8	12	12	0	0
5	A	1	0	0	0	0
5	B	1	0	0	0	0
5	C	1	0	0	0	0
6	A	1	0	0	0	0
6	B	1	0	0	0	0
6	C	1	0	0	0	0
7	A	1	0	0	0	0
7	B	1	0	0	0	0
7	C	1	0	0	0	0
8	A	29	0	0	0	0
8	B	29	0	0	0	0
8	C	29	0	0	0	0
9	A	13	17	0	1	0
10	A	203	0	0	1	0
10	B	192	0	0	2	0
10	C	112	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	9657	163	8786	35	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 2.

The worst 5 of 35 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:55:LYS:HE3	1:A:327:CYS:SG	1.93	1.08
1:B:55:LYS:NZ	1:B:327:CYS:SG	2.45	0.89
1:C:55:LYS:NZ	1:C:327:CYS:SG	2.53	0.81
1:B:278[B]:CYS:SG	10:B:875:HOH:O	2.39	0.81
1:B:235:ASP:OD1	1:B:278[A]:CYS:SG	2.39	0.79

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	Percentiles	
1	A	372/498 (75%)	365 (98%)	7 (2%)	0	100	100
1	B	370/498 (74%)	364 (98%)	6 (2%)	0	100	100
1	C	367/498 (74%)	362 (99%)	5 (1%)	0	100	100
All	All	1109/1494 (74%)	1091 (98%)	18 (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	324/425 (76%)	319 (98%)	5 (2%)	65	47
1	B	321/425 (76%)	319 (99%)	2 (1%)	86	79
1	C	319/425 (75%)	317 (99%)	2 (1%)	86	79
All	All	964/1275 (76%)	955 (99%)	9 (1%)	81	67

5 of 9 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	145	HIS
1	C	326	ASP
1	A	235[B]	ASP
1	A	326	ASP
1	B	89	MET

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

Mol	Chain	Res	Type
1	C	244[A]	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](#)

Of 28 ligands modelled in this entry, 9 are monoatomic - leaving 19 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
4	EDO	C	604	-	3,3,3	0.40	0	2,2,2	0.21	0
2	PEG	B	603	-	6,6,6	0.43	0	5,5,5	0.40	0
2	PEG	B	605	-	6,6,6	0.49	0	5,5,5	0.25	0
4	EDO	B	601	-	3,3,3	0.33	0	2,2,2	0.68	0
2	PEG	C	602	-	6,6,6	0.47	0	5,5,5	0.20	0
2	PEG	A	601	-	6,6,6	0.51	0	5,5,5	0.75	0
8	KKW	C	608	5	30,33,33	0.61	1 (3%)	37,47,47	0.87	2 (5%)
2	PEG	B	604	-	6,6,6	0.44	0	5,5,5	0.41	0
3	PG4	A	603	-	12,12,12	0.49	0	11,11,11	0.28	0
8	KKW	A	609	5	30,33,33	0.65	1 (3%)	37,47,47	0.96	1 (2%)
2	PEG	B	602	-	6,6,6	0.43	0	5,5,5	0.43	0
2	PEG	A	602	-	6,6,6	0.53	0	5,5,5	0.33	0
9	KZF	A	610	-	13,13,13	0.60	0	16,17,17	0.50	0
4	EDO	B	606	-	3,3,3	0.49	0	2,2,2	0.19	0
2	PEG	A	605	-	6,6,6	0.46	0	5,5,5	0.42	0
4	EDO	C	603	-	3,3,3	0.46	0	2,2,2	0.31	0
4	EDO	A	604	-	3,3,3	0.36	0	2,2,2	0.46	0
3	PG4	C	601	-	12,12,12	0.50	0	11,11,11	0.47	0
8	KKW	B	610	5	30,33,33	0.54	0	37,47,47	0.89	1 (2%)

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
4	EDO	C	604	-	-	0/1/1/1	-
2	PEG	B	603	-	-	2/4/4/4	-
2	PEG	B	605	-	-	3/4/4/4	-
4	EDO	B	601	-	-	0/1/1/1	-
2	PEG	C	602	-	-	0/4/4/4	-
2	PEG	A	601	-	-	2/4/4/4	-
8	KKW	C	608	5	-	0/16/35/35	0/5/5/5

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	PEG	B	604	-	-	2/4/4/4	-
3	PG4	A	603	-	-	5/10/10/10	-
8	KKW	A	609	5	-	0/16/35/35	0/5/5/5
2	PEG	B	602	-	-	3/4/4/4	-
2	PEG	A	602	-	-	0/4/4/4	-
9	KZF	A	610	-	-	0/7/15/15	0/1/1/1
4	EDO	B	606	-	-	0/1/1/1	-
2	PEG	A	605	-	-	2/4/4/4	-
4	EDO	C	603	-	-	1/1/1/1	-
4	EDO	A	604	-	-	0/1/1/1	-
3	PG4	C	601	-	-	1/10/10/10	-
8	KKW	B	610	5	-	0/16/35/35	0/5/5/5

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	A	609	KKW	C08-N26	2.56	1.36	1.33
8	C	608	KKW	C08-N26	2.36	1.36	1.33

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	A	609	KKW	C11-C13-S28	4.61	114.49	111.74
8	C	608	KKW	C11-C13-S28	4.03	114.14	111.74
8	B	610	KKW	C11-C13-S28	3.77	113.99	111.74
8	C	608	KKW	C09-N26-C08	2.07	119.94	115.15

There are no chirality outliers.

5 of 21 torsion outliers are listed below:

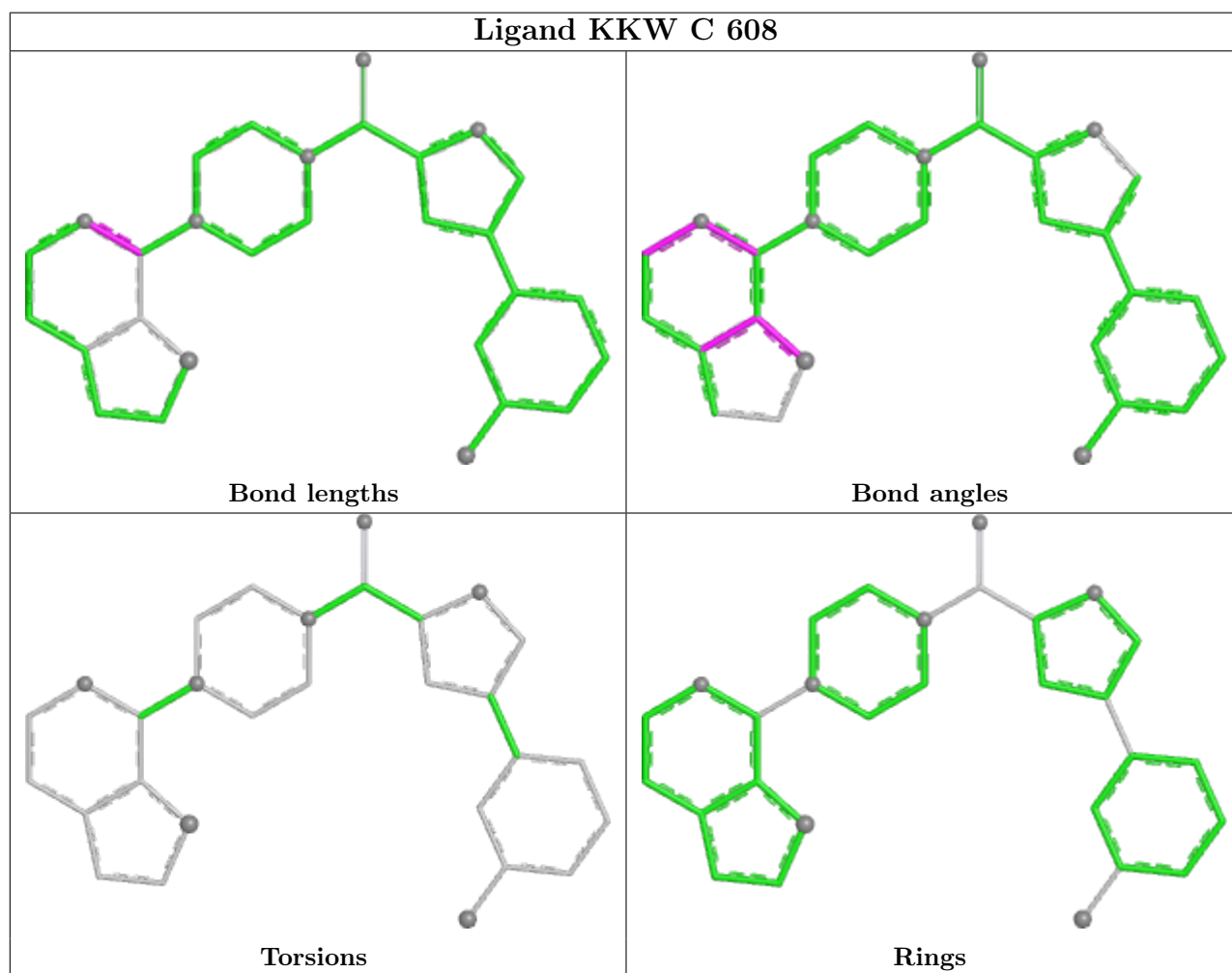
Mol	Chain	Res	Type	Atoms
2	B	605	PEG	O1-C1-C2-O2
2	B	603	PEG	O1-C1-C2-O2
2	B	602	PEG	O1-C1-C2-O2
2	B	604	PEG	O1-C1-C2-O2
2	A	601	PEG	O2-C3-C4-O4

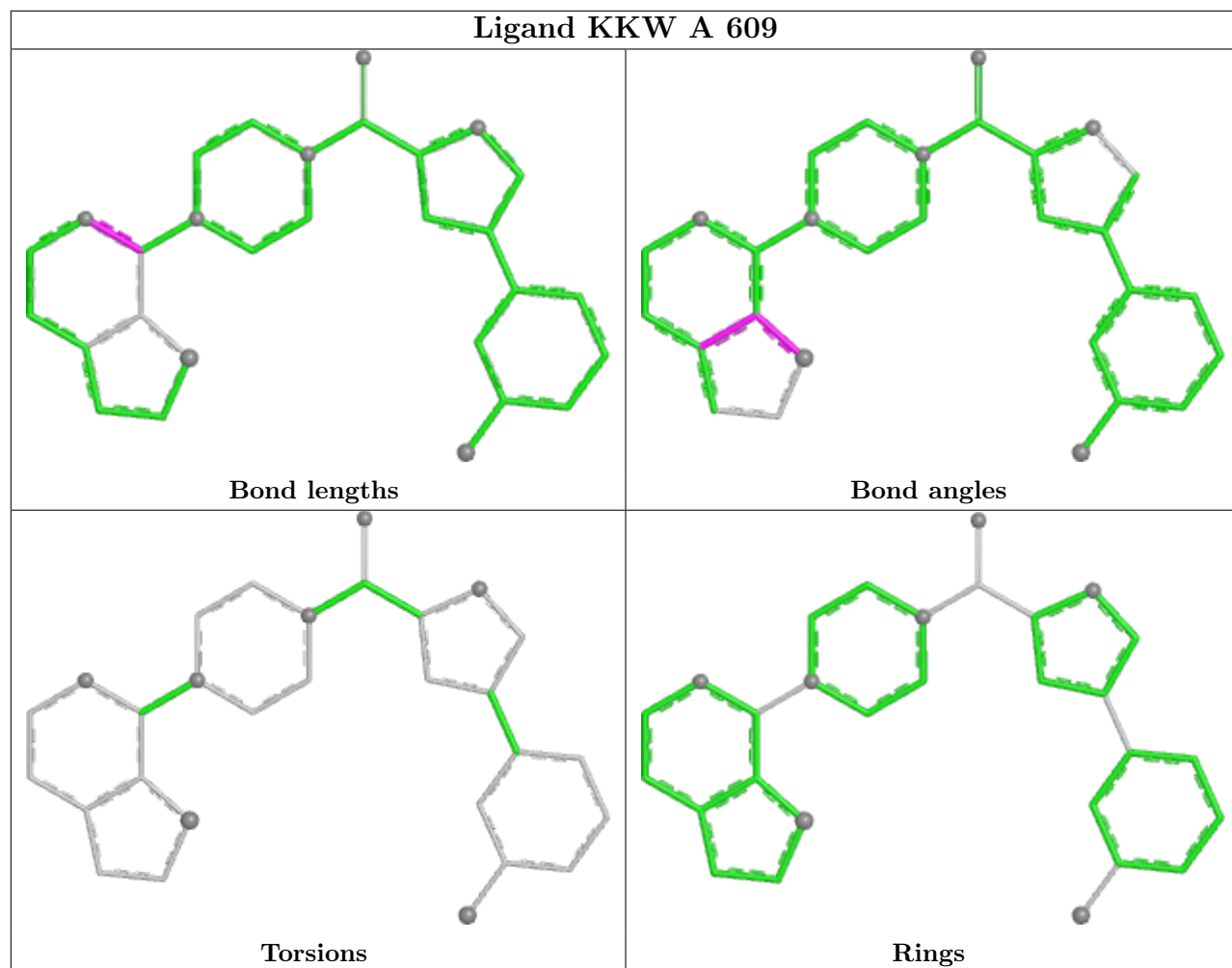
There are no ring outliers.

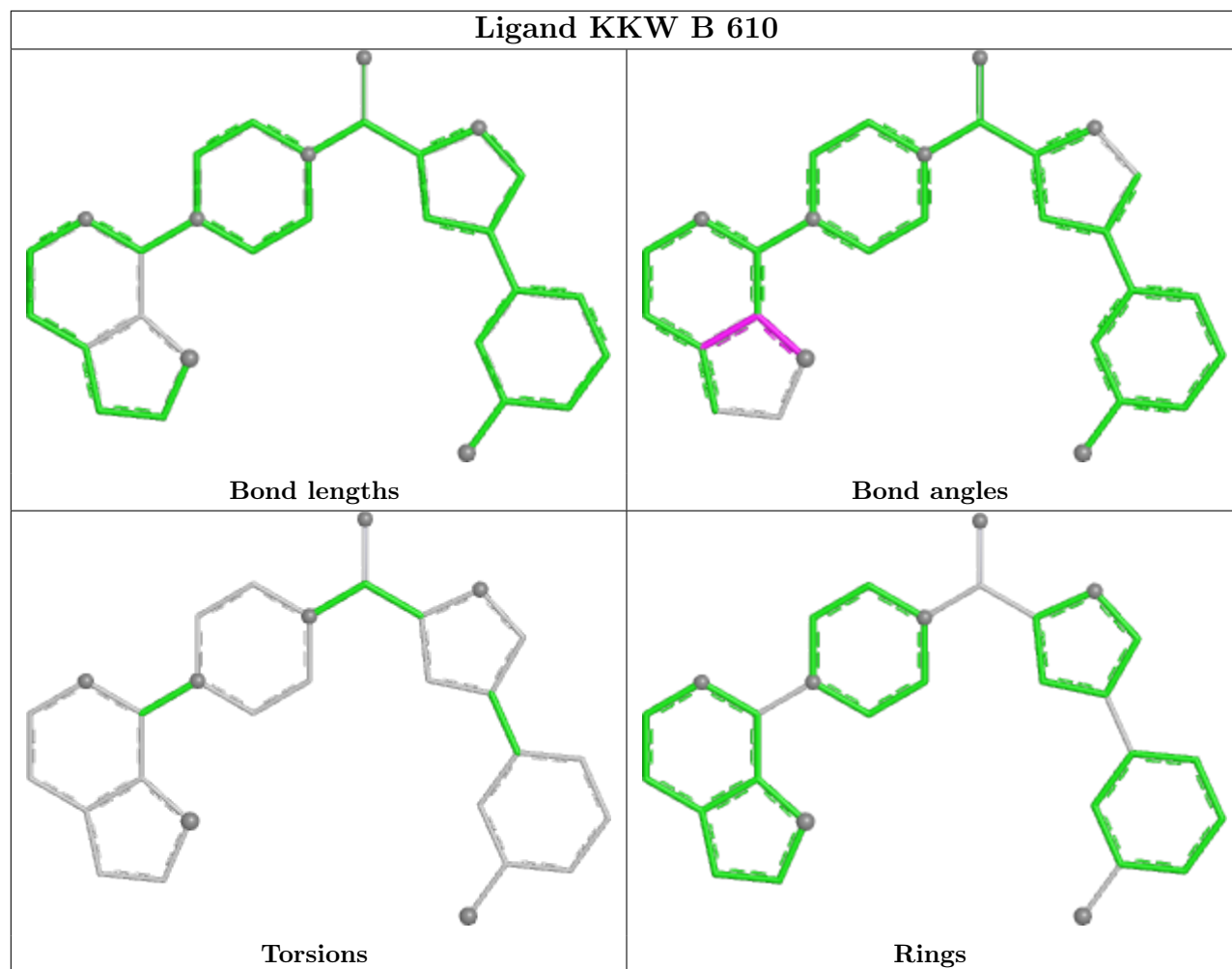
1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
9	A	610	KZF	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 than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.







5.7 Other polymers [\(i\)](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [\(i\)](#)

There are no chain breaks in this entry.

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

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

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	367/498 (73%)	-0.11	1 (0%) 94 95	15, 25, 46, 78	3 (0%)
1	B	368/498 (73%)	-0.15	3 (0%) 86 90	18, 26, 46, 63	3 (0%)
1	C	367/498 (73%)	0.15	15 (4%) 37 42	21, 33, 54, 77	3 (0%)
All	All	1102/1494 (73%)	-0.04	19 (1%) 70 76	15, 28, 51, 78	9 (0%)

The worst 5 of 19 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	31	GLN	4.8
1	C	379	PRO	4.4
1	C	13	LYS	4.2
1	C	341	TYR	3.9
1	C	354	ASN	3.9

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

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

6.3 Carbohydrates [i](#)

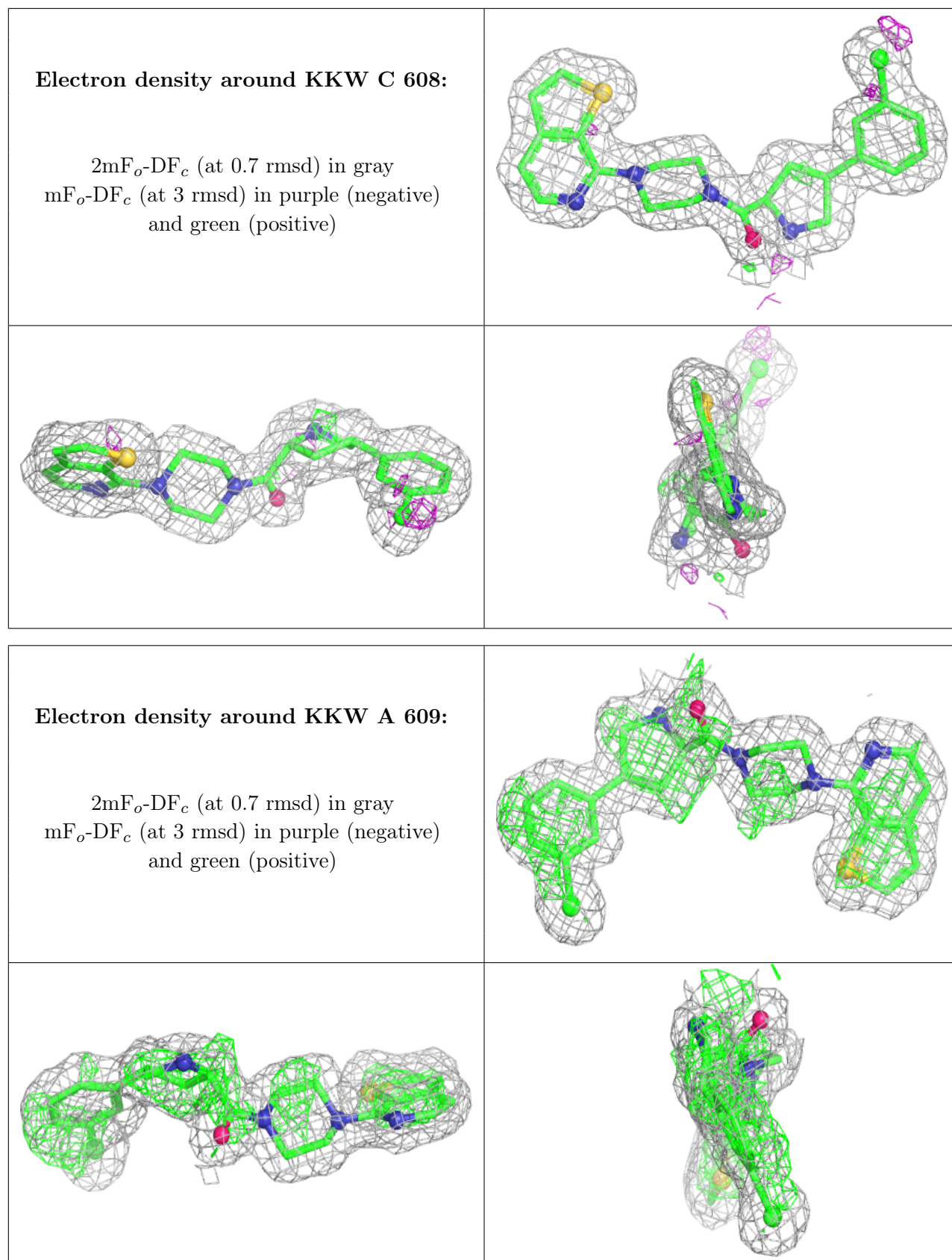
There are no monosaccharides in this entry.

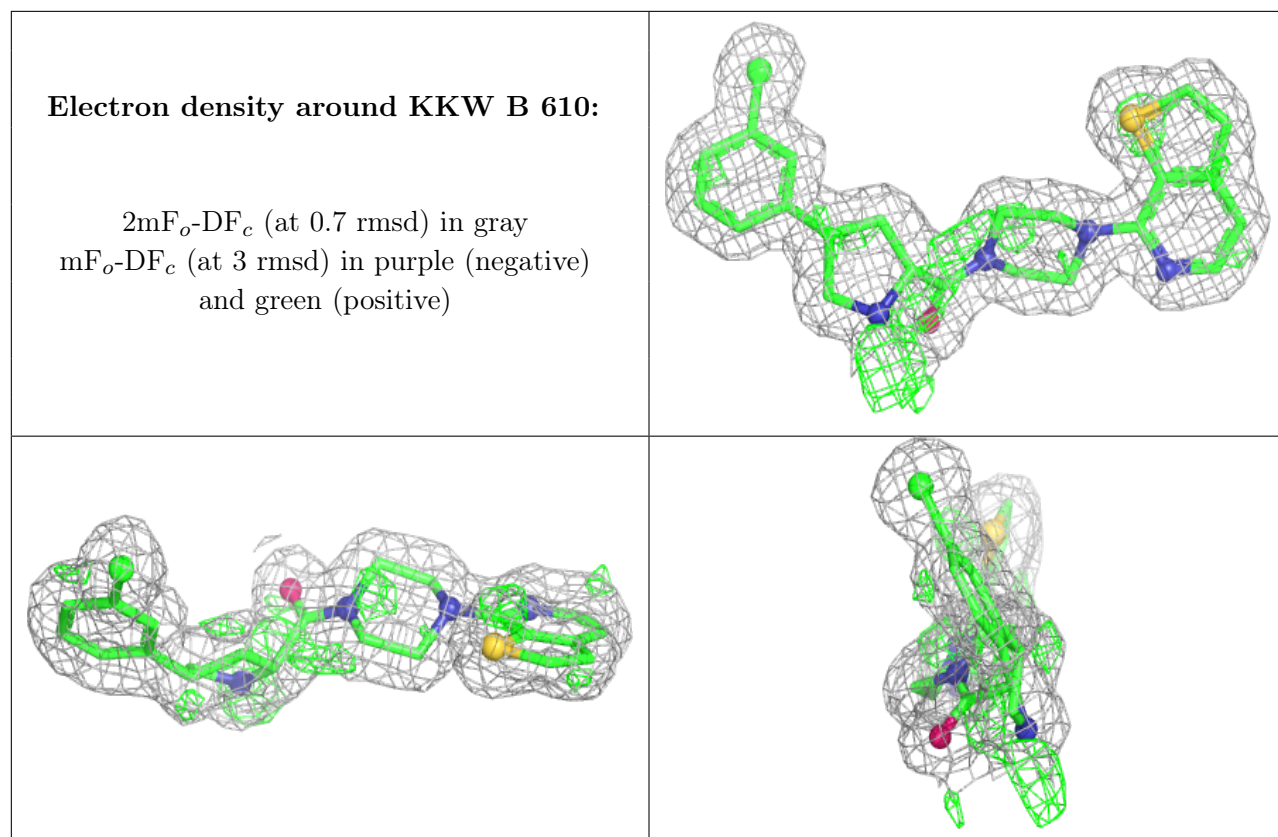
6.4 Ligands [i](#)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
2	PEG	A	605	7/7	0.58	0.18	41,62,67,69	1
2	PEG	B	605	7/7	0.68	0.22	41,61,65,68	1
2	PEG	B	604	7/7	0.77	0.18	41,64,73,79	1
2	PEG	B	603	7/7	0.77	0.16	41,56,59,59	1
4	EDO	C	603	4/4	0.80	0.13	41,57,61,63	1
4	EDO	B	606	4/4	0.83	0.16	41,59,62,62	1
3	PG4	A	603	13/13	0.83	0.16	41,60,69,72	1
2	PEG	B	602	7/7	0.84	0.17	26,54,61,62	1
4	EDO	B	601	4/4	0.88	0.10	26,52,57,60	1
3	PG4	C	601	13/13	0.89	0.14	26,47,53,54	1
2	PEG	A	602	7/7	0.89	0.18	26,47,52,52	1
9	KZF	A	610	13/13	0.89	0.16	46,55,65,71	30
2	PEG	C	602	7/7	0.90	0.15	26,46,52,53	1
4	EDO	C	604	4/4	0.92	0.20	41,59,66,71	1
4	EDO	A	604	4/4	0.92	0.09	41,47,54,59	1
8	KKW	C	608	29/29	0.95	0.08	16,27,31,34	0
2	PEG	A	601	7/7	0.95	0.10	26,40,41,42	1
8	KKW	A	609	29/29	0.97	0.16	10,14,23,24	29
8	KKW	B	610	29/29	0.97	0.13	12,17,24,24	29
7	NA	B	609	1/1	0.99	0.15	19,19,19,19	0
7	NA	C	607	1/1	0.99	0.12	19,19,19,19	0
5	ZN	C	605	1/1	0.99	0.06	23,23,23,23	0
6	CA	B	608	1/1	0.99	0.08	20,20,20,20	0
6	CA	C	606	1/1	0.99	0.06	24,24,24,24	0
7	NA	A	608	1/1	0.99	0.15	16,16,16,16	0
5	ZN	B	607	1/1	1.00	0.10	19,19,19,19	0
5	ZN	A	606	1/1	1.00	0.09	17,17,17,17	0
6	CA	A	607	1/1	1.00	0.08	19,19,19,19	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.