wwPDB X-ray Structure Validation Summary Report (i)

Dec 3, 2024 – 09:06 am GMT

PDB ID	:	8RM3
Title	:	Crystal structure of ferrioxamine transporter FoxA
Authors	:	Josts, I.; Tidow, H.; Mislin, G.
Deposited on	:	2024-01-04
Resolution	:	2.22 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 (i) symbol.

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

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

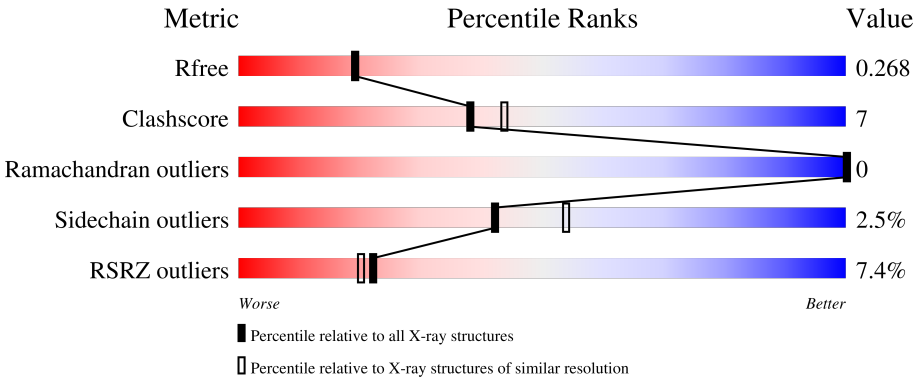
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.40

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 2.22 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}	164625	7167 (2.24-2.20)
Clashscore	180529	8096 (2.24-2.20)
Ramachandran outliers	177936	8010 (2.24-2.20)
Sidechain outliers	177891	8011 (2.24-2.20)
RSRZ outliers	164620	7166 (2.24-2.20)

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	820	6% 70% 11% · 17%

2 Entry composition

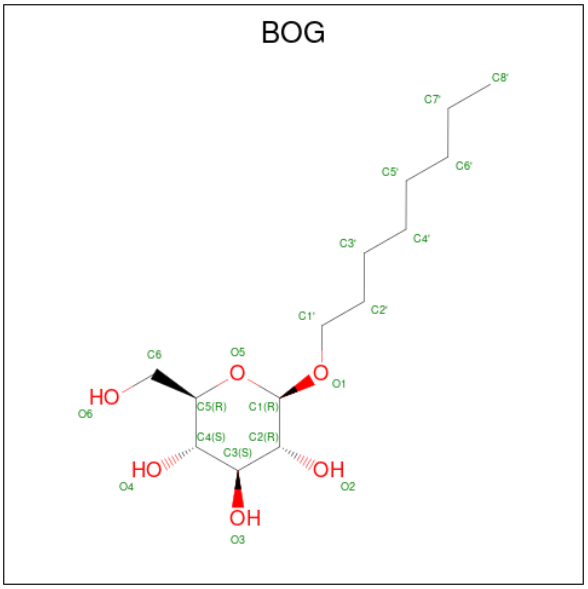
There are 10 unique types of molecules in this entry. The entry contains 5668 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Ferrioxamine receptor FoxA.

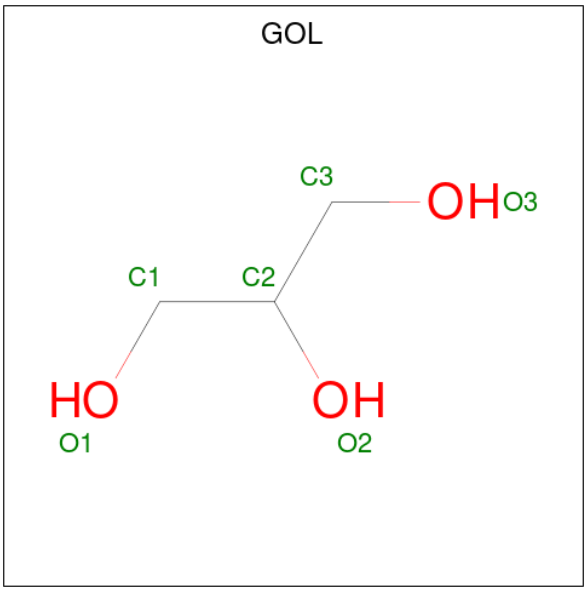
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	677	Total	C	N	O	S	0	0	0
			5325	3345	910	1059	11			

- Molecule 2 is octyl beta-D-glucopyranoside (three-letter code: BOG) (formula: $C_{14}H_{28}O_6$).



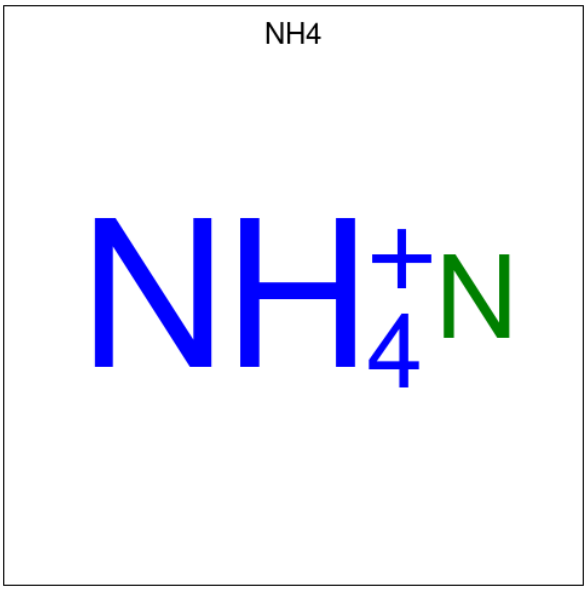
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	C	O	0	0
			20	14	6		
2	A	1	Total	C	O	0	0
			9	8	1		
2	A	1	Total	C	O	0	0
			20	14	6		
2	A	1	Total	C	O	0	0
			20	14	6		

- Molecule 3 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C O 6 3 3	0	0
3	A	1	Total C O 6 3 3	0	0
3	A	1	Total C O 6 3 3	0	0

- Molecule 4 is AMMONIUM ION (three-letter code: NH4) (formula: H_4N).



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

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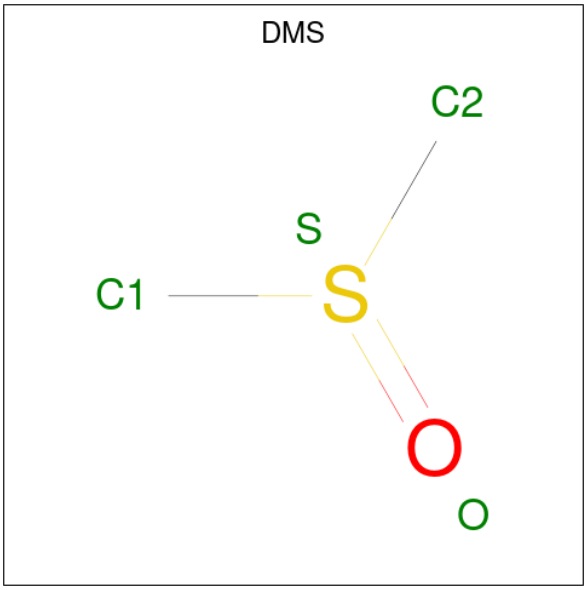
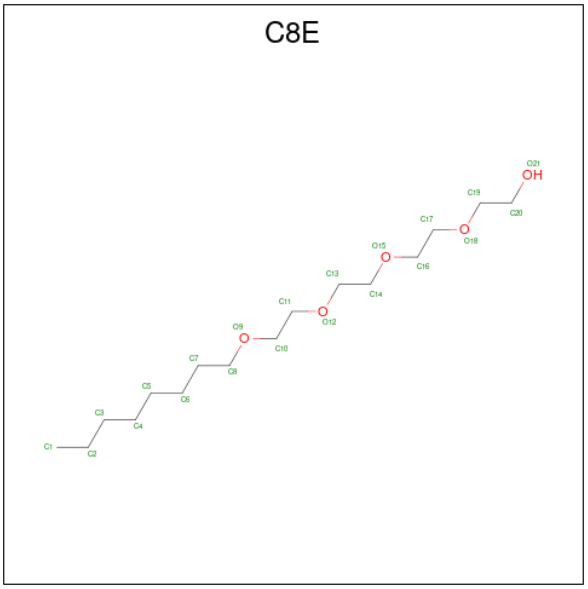
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total N 1 1	0	0

- Molecule 5 is DIMETHYL SULFOXIDE (three-letter code: DMS) (formula: C_2H_6OS).



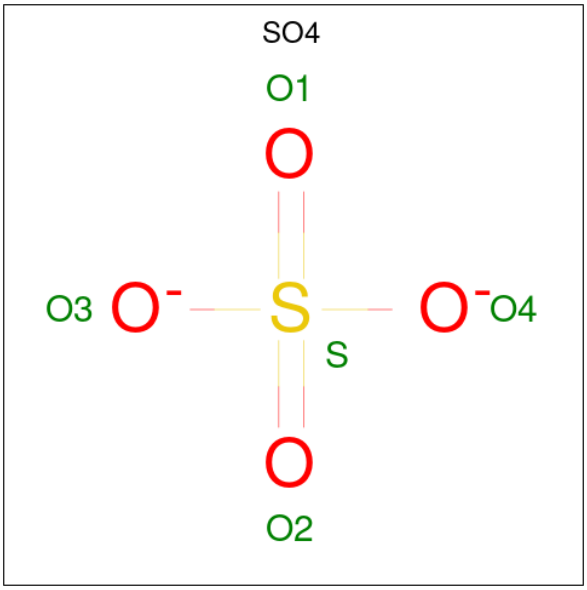
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total C O S 4 2 1 1	0	0

- Molecule 6 is (HYDROXYETHYLOXY)TRI(ETHYLOXY)OCTANE (three-letter code: C8E) (formula: $C_{16}H_{34}O_5$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	1	Total C O 10 9 1	0	0
6	A	1	Total C O 10 9 1	0	0
6	A	1	Total C O 21 16 5	0	0

- Molecule 7 is SULFATE ION (three-letter code: SO4) (formula: O_4S).

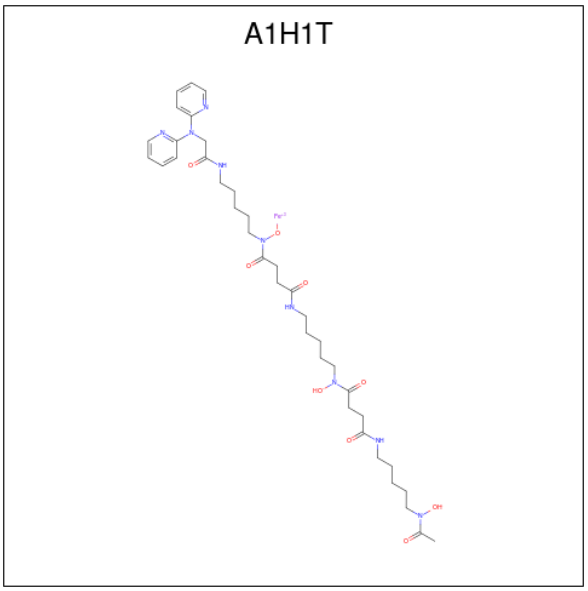


Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	1	Total O S 5 4 1	0	0
7	A	1	Total O S 5 4 1	0	0
7	A	1	Total O S 5 4 1	0	0

- Molecule 8 is SODIUM ION (three-letter code: NA) (formula: Na).

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

- Molecule 9 is [5-[2-(dipyridin-2-ylamino)ethanoylamino]pentyl-[4-[5-[[4-[5-[ethanoyl(oxidanyl)amino]pentylamino]-4-oxidanylidene-butanoyl]-oxidanyl-amino]pentylamino]-4-oxidanylidene-butanoyl]amino]oxyiron (three-letter code: A1H1T) (formula: $C_{37}H_{56}FeN_9O_9$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
9	A	1	Total	C	Fe	N	O	0	0
			56	37	1	9	9		

- Molecule 10 is water.

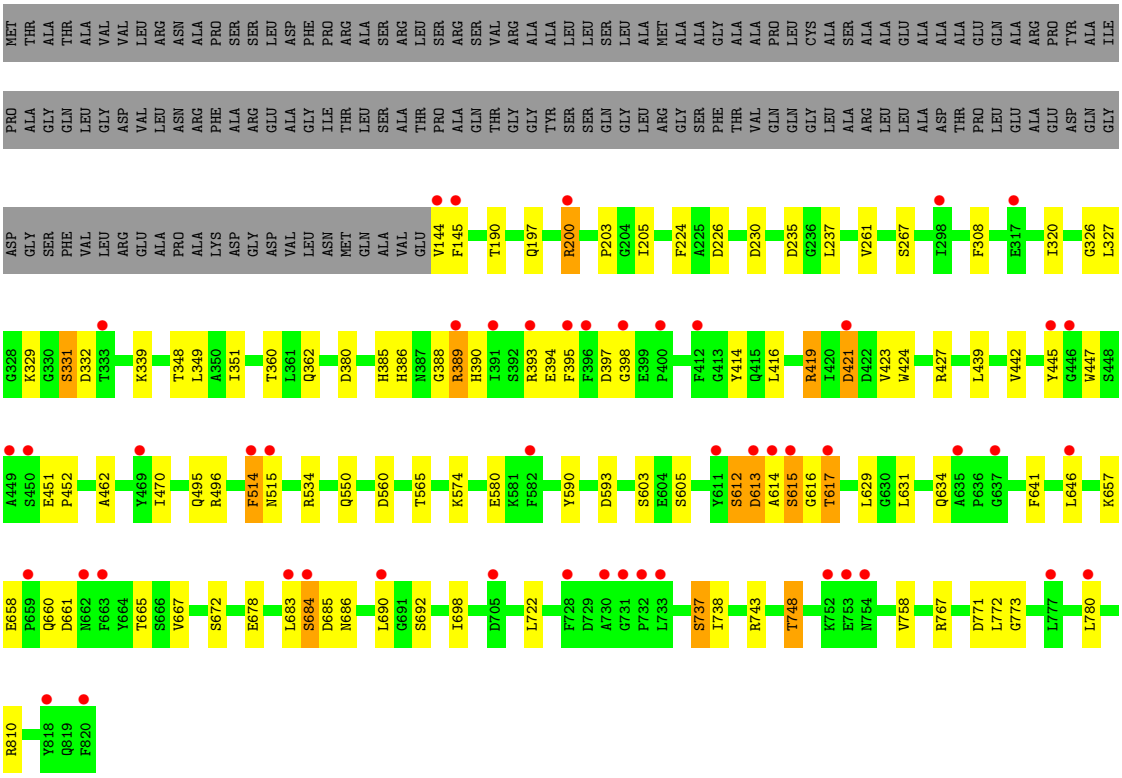
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
10	A	137	Total	O	0	0
			137	137		

3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: Ferrioxamine receptor FoxA

Chain A:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 32 2 1	Depositor
Cell constants a, b, c, α, β, γ	94.03Å 94.03Å 178.06Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	81.43 – 2.22 81.43 – 2.22	Depositor EDS
% Data completeness (in resolution range)	83.0 (81.43-2.22) 83.0 (81.43-2.22)	Depositor EDS
R_{merge}	0.11	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.29 (at 2.22Å)	Xtriage
Refinement program	REFMAC 5.8.0419	Depositor
R, R_{free}	0.222 , 0.258 0.226 , 0.268	Depositor DCC
R_{free} test set	2239 reflections (4.79%)	wwPDB-VP
Wilson B-factor (Å^2)	53.0	Xtriage
Anisotropy	0.033	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 35.2	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.34$	Xtriage
Estimated twinning fraction	0.024 for -h,-k,l	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	5668	wwPDB-VP
Average B, all atoms (Å^2)	58.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.26% 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: SO4, C8E, NH4, BOG, GOL, NA, A1H1T, DMS

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	0.44	0/5451	0.75	7/7397 (0.1%)

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	6

There are no bond length outliers.

The worst 5 of 7 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	613	ASP	CA-C-N	-8.38	98.76	117.20
1	A	613	ASP	O-C-N	7.46	134.63	122.70
1	A	613	ASP	C-N-CA	-7.22	103.64	121.70
1	A	200	ARG	NE-CZ-NH2	-6.34	117.13	120.30
1	A	743	ARG	NE-CZ-NH2	-5.34	117.63	120.30

There are no chirality outliers.

5 of 6 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	389	ARG	Sidechain
1	A	393	ARG	Sidechain
1	A	419	ARG	Sidechain
1	A	496	ARG	Sidechain
1	A	534	ARG	Sidechain

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	5325	0	5038	73	0
2	A	69	0	101	1	0
3	A	18	0	24	1	0
4	A	2	0	0	0	0
5	A	4	0	6	2	0
6	A	41	0	68	2	0
7	A	15	0	0	0	0
8	A	1	0	0	0	0
9	A	56	0	0	0	0
10	A	137	0	0	0	0
All	All	5668	0	5237	73	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 7.

The worst 5 of 73 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:613:ASP:O	1:A:614:ALA:HB3	1.70	0.90
1:A:197:GLN:O	1:A:200:ARG:NE	2.12	0.81
1:A:385:HIS:CE1	1:A:389:ARG:HG3	2.25	0.71
1:A:612:SER:C	1:A:614:ALA:N	2.41	0.71
1:A:235:ASP:HA	3:A:914:GOL:H31	1.73	0.70

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	675/820 (82%)	649 (96%)	26 (4%)	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	566/667 (85%)	552 (98%)	14 (2%)	42 54

5 of 14 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	615	SER
1	A	617	THR
1	A	748	THR
1	A	692	SER
1	A	737	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

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 oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 18 ligands modelled in this entry, 2 are modelled with single atom and 1 is monoatomic - leaving 15 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	$\#\|Z\| > 2$
2	BOG	A	903	-	8,8,20	0.27	0	7,7,25	0.31	0
7	SO4	A	916	-	4,4,4	0.55	0	6,6,6	0.34	0
9	A1H1T	A	901	-	54,57,57	2.18	11 (20%)	57,70,70	1.60	10 (17%)
7	SO4	A	917	-	4,4,4	0.47	0	6,6,6	0.19	0
3	GOL	A	914	-	5,5,5	0.50	0	5,5,5	0.72	0
6	C8E	A	910	-	9,9,20	0.39	0	8,8,19	0.20	0
6	C8E	A	911	-	9,9,20	0.39	0	8,8,19	0.22	0
2	BOG	A	912	-	20,20,20	0.60	0	25,25,25	1.23	3 (12%)
2	BOG	A	902	-	20,20,20	0.45	0	25,25,25	0.49	0
7	SO4	A	918	-	4,4,4	0.72	0	6,6,6	0.19	0
3	GOL	A	905	-	5,5,5	0.24	0	5,5,5	0.40	0
5	DMS	A	909	-	3,3,3	0.83	0	3,3,3	0.60	0
3	GOL	A	904	-	5,5,5	0.31	0	5,5,5	0.36	0
6	C8E	A	913	-	20,20,20	0.39	0	19,19,19	0.34	0
2	BOG	A	908	-	20,20,20	0.46	0	25,25,25	0.61	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	BOG	A	903	-	-	4/6/6/31	-
9	A1H1T	A	901	-	-	27/60/63/63	0/2/2/2
3	GOL	A	914	-	-	4/4/4/4	-
6	C8E	A	910	-	-	4/7/7/18	-
6	C8E	A	911	-	-	5/7/7/18	-
2	BOG	A	912	-	-	9/11/31/31	0/1/1/1
2	BOG	A	902	-	-	8/11/31/31	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	GOL	A	905	-	-	1/4/4/4	-
3	GOL	A	904	-	-	4/4/4/4	-
6	C8E	A	913	-	-	13/18/18/18	-
2	BOG	A	908	-	-	8/11/31/31	0/1/1/1

The worst 5 of 11 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
9	A	901	A1H1T	C14-N03	7.81	1.45	1.34
9	A	901	A1H1T	C05-N01	6.97	1.45	1.35
9	A	901	A1H1T	C17-N04	5.62	1.46	1.33
9	A	901	A1H1T	C25-N06	5.25	1.45	1.33
9	A	901	A1H1T	C08-N02	5.22	1.45	1.33

The worst 5 of 13 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
9	A	901	A1H1T	C37-N09-C29	3.83	121.92	116.86
2	A	912	BOG	O5-C1-C2	3.78	118.36	110.35
9	A	901	A1H1T	C30-N08-C28	3.75	121.82	116.86
9	A	901	A1H1T	C29-N07-C28	-3.55	116.38	122.51
9	A	901	A1H1T	C15-C16-C17	3.07	117.94	112.56

There are no chirality outliers.

5 of 87 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	902	BOG	O5-C1-O1-C1'
2	A	908	BOG	C2-C1-O1-C1'
2	A	908	BOG	O5-C1-O1-C1'
2	A	912	BOG	C2-C1-O1-C1'
2	A	912	BOG	O5-C1-O1-C1'

There are no ring outliers.

4 monomers are involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	914	GOL	1	0
2	A	902	BOG	1	0
5	A	909	DMS	2	0

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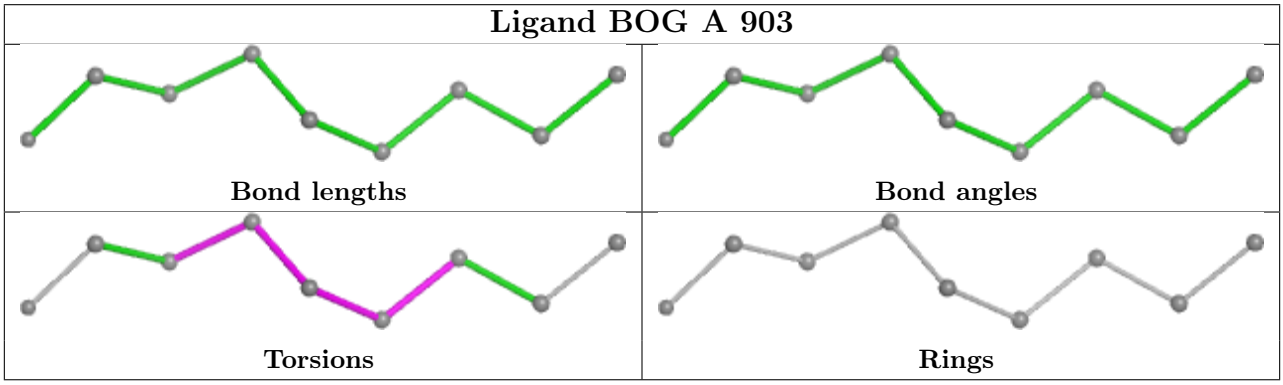
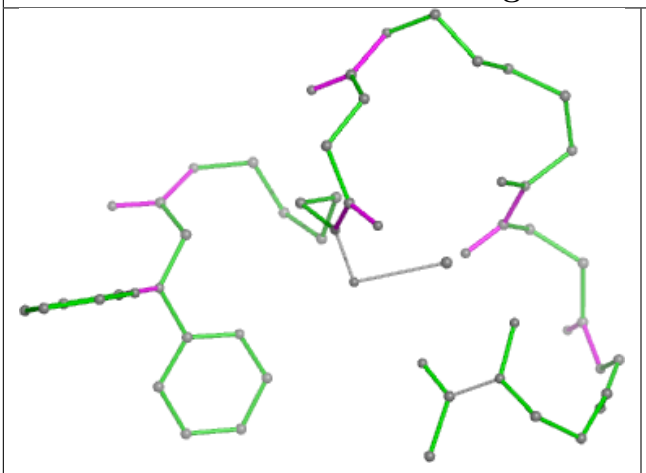
Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	A	913	C8E	2	0

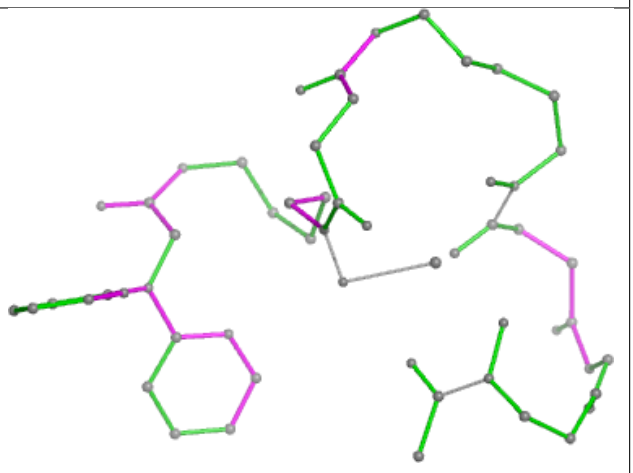
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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



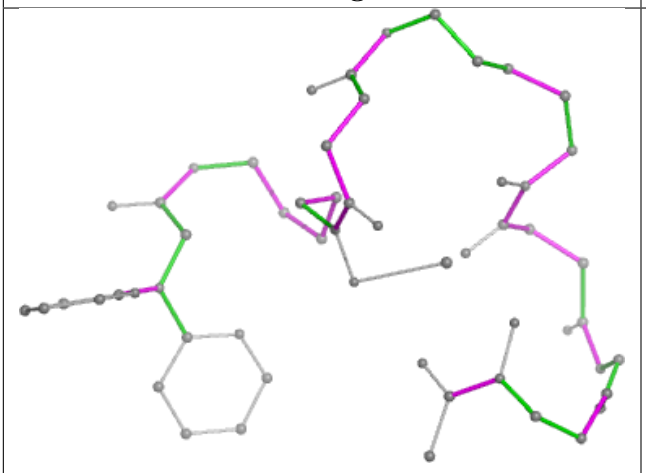
Ligand A1H1T A 901



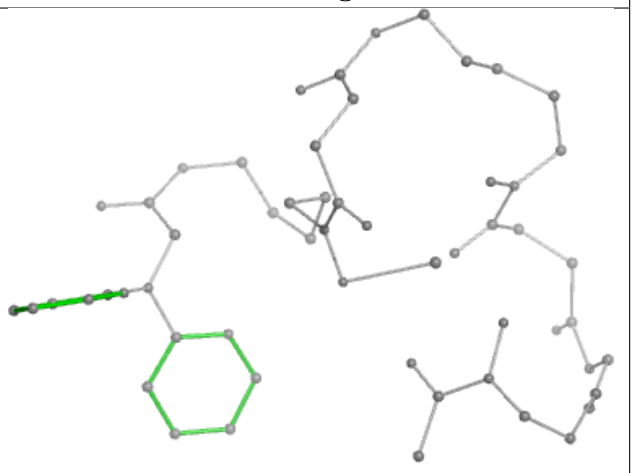
Bond lengths



Bond angles

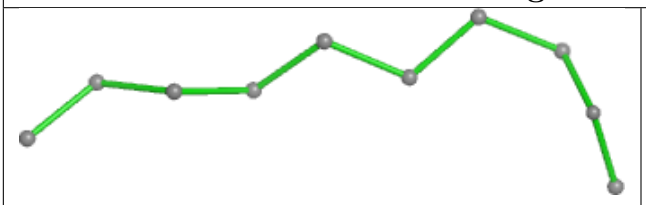


Torsions

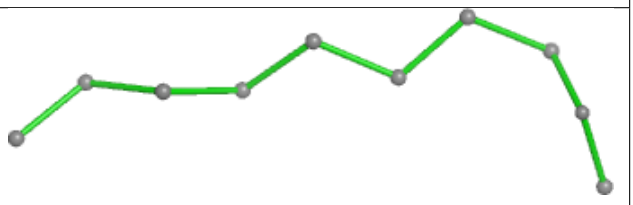


Rings

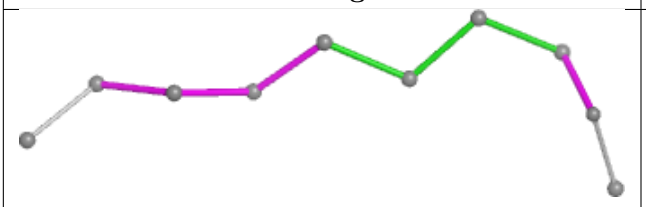
Ligand C8E A 910



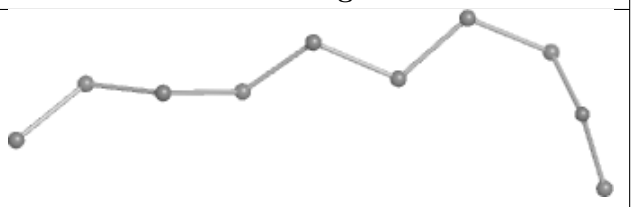
Bond lengths



Bond angles

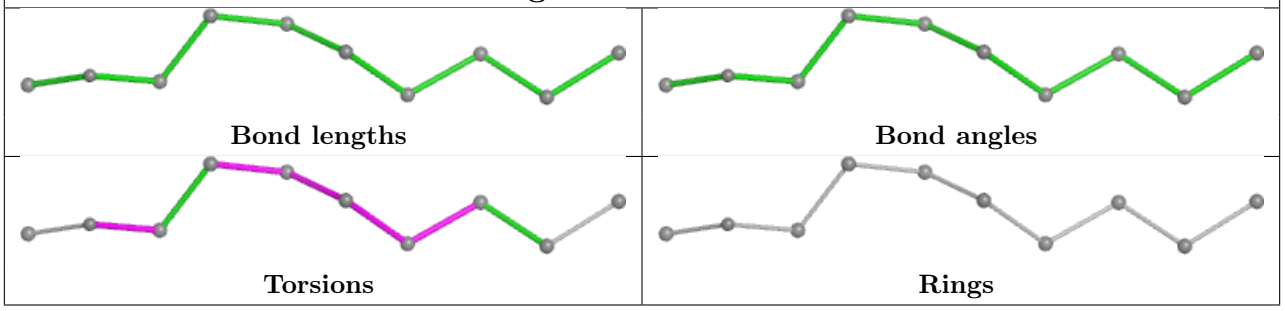


Torsions

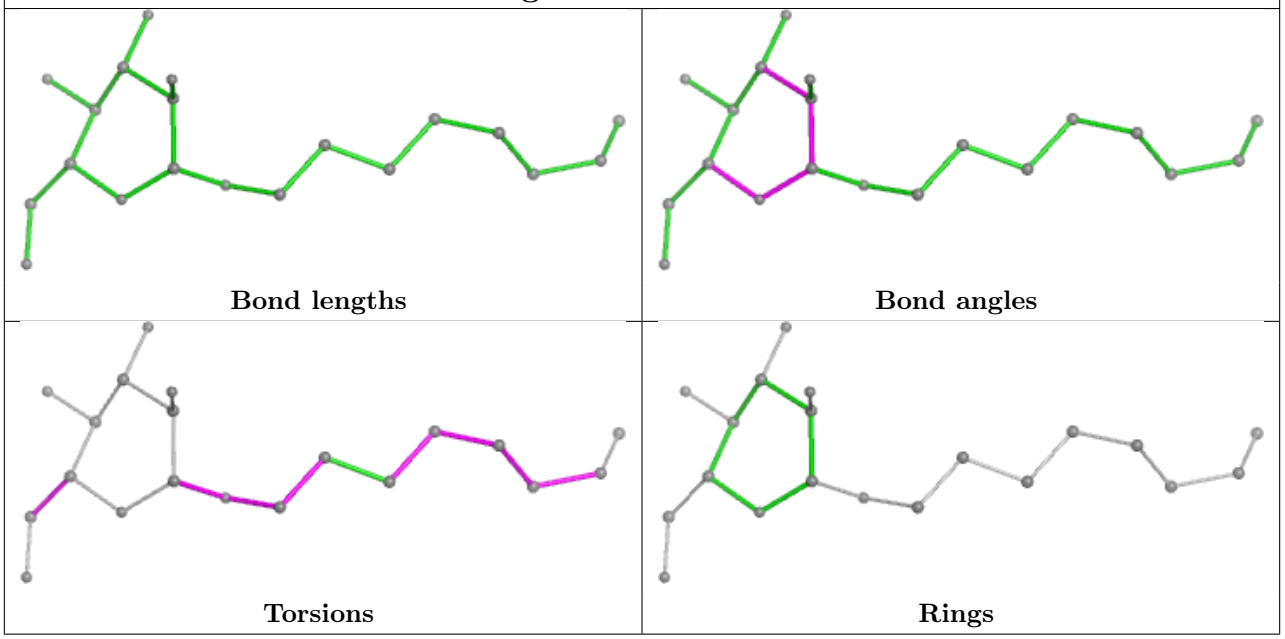


Rings

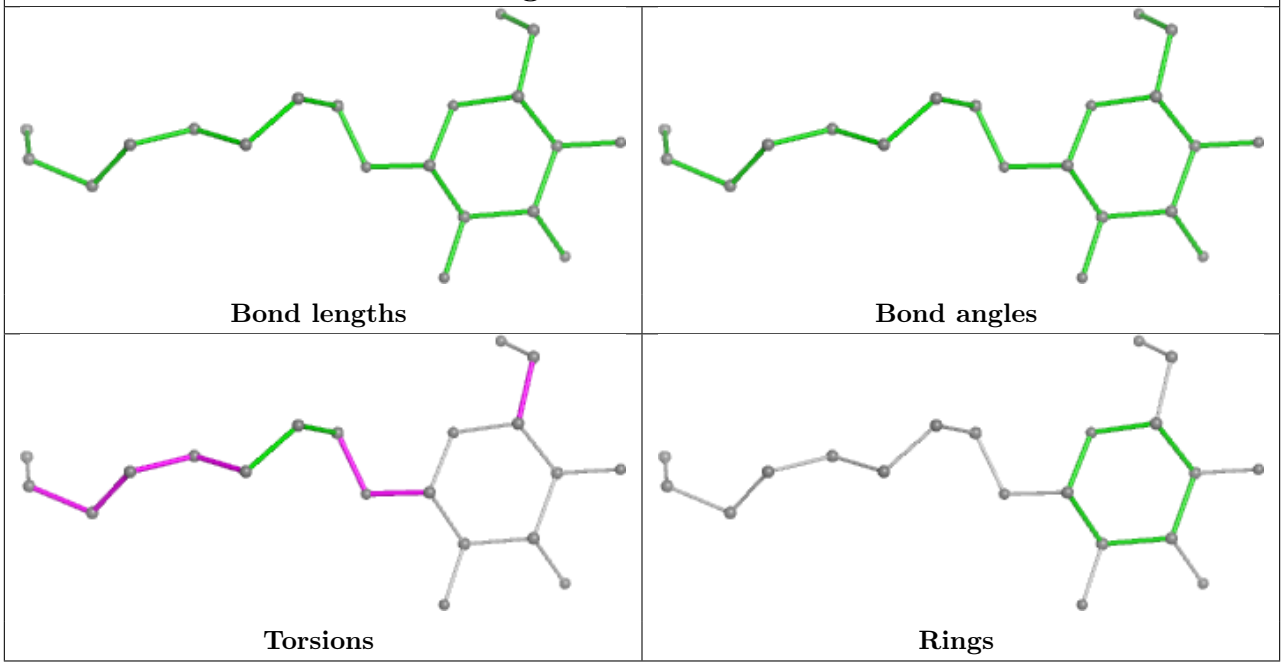
Ligand C8E A 911



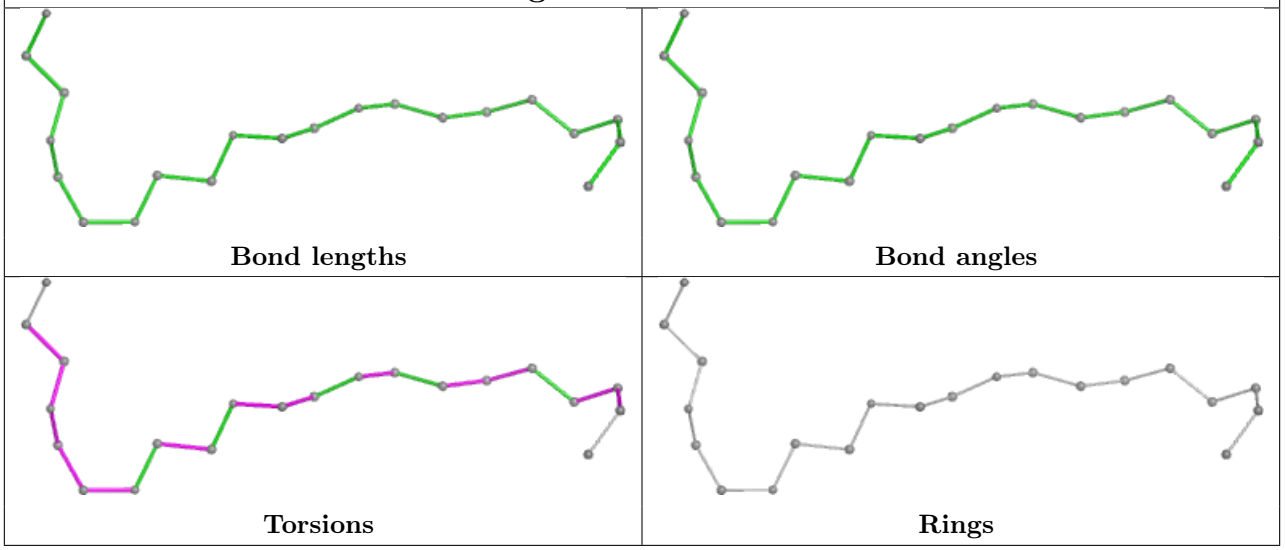
Ligand BOG A 912



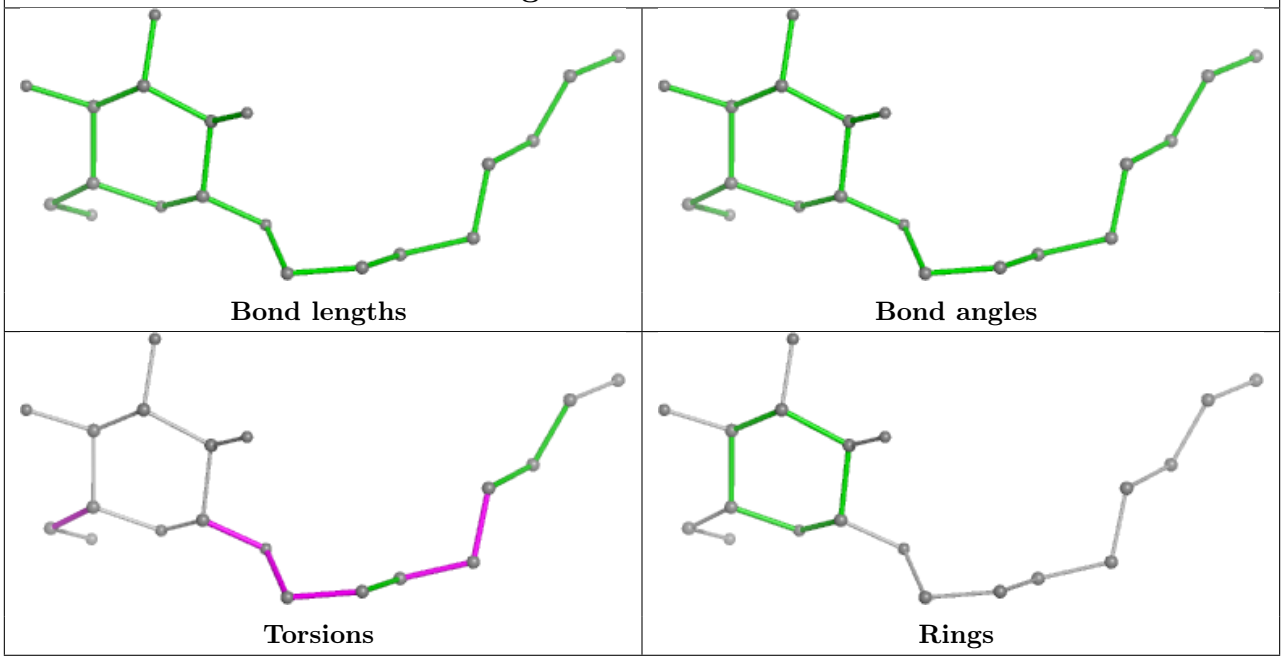
Ligand BOG A 902



Ligand C8E A 913



Ligand BOG A 908



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

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, 95^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	677/820 (82%)	0.46	50 (7%)	22	20	38, 55, 90, 125	0

The worst 5 of 50 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	398	GLY	5.4
1	A	614	ALA	5.3
1	A	391	ILE	4.4
1	A	389	ARG	4.2
1	A	613	ASP	4.1

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

There are no monosaccharides in this entry.

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
4	NH4	A	907	1/1	0.70	0.28	50,50,50,50	0
6	C8E	A	910	10/21	0.70	0.28	60,63,72,73	0

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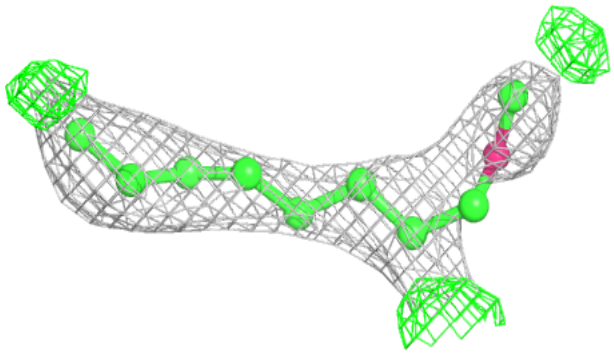
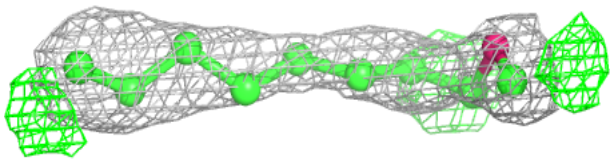
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	BOG	A	908	20/20	0.72	0.21	65,70,78,78	0
2	BOG	A	902	20/20	0.73	0.20	68,73,78,79	0
3	GOL	A	904	6/6	0.78	0.16	54,55,56,56	0
2	BOG	A	912	20/20	0.79	0.19	77,86,94,96	0
3	GOL	A	905	6/6	0.82	0.18	66,67,68,69	0
3	GOL	A	914	6/6	0.82	0.15	48,50,54,54	0
6	C8E	A	913	21/21	0.83	0.18	65,71,83,84	0
4	NH4	A	906	1/1	0.85	0.26	54,54,54,54	0
7	SO4	A	918	5/5	0.85	0.20	48,49,52,55	0
9	A1H1T	A	901	56/56	0.85	0.20	42,57,67,68	0
7	SO4	A	917	5/5	0.86	0.20	51,52,55,57	0
6	C8E	A	911	10/21	0.86	0.22	69,72,78,79	0
5	DMS	A	909	4/4	0.86	0.20	52,58,59,59	0
7	SO4	A	916	5/5	0.87	0.16	48,52,55,56	0
2	BOG	A	903	9/20	0.88	0.15	57,58,63,65	0
8	NA	A	919	1/1	0.93	0.18	51,51,51,51	0

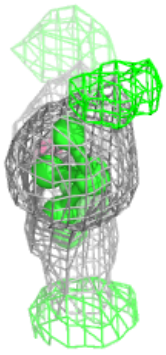
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around C8E A 910:

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

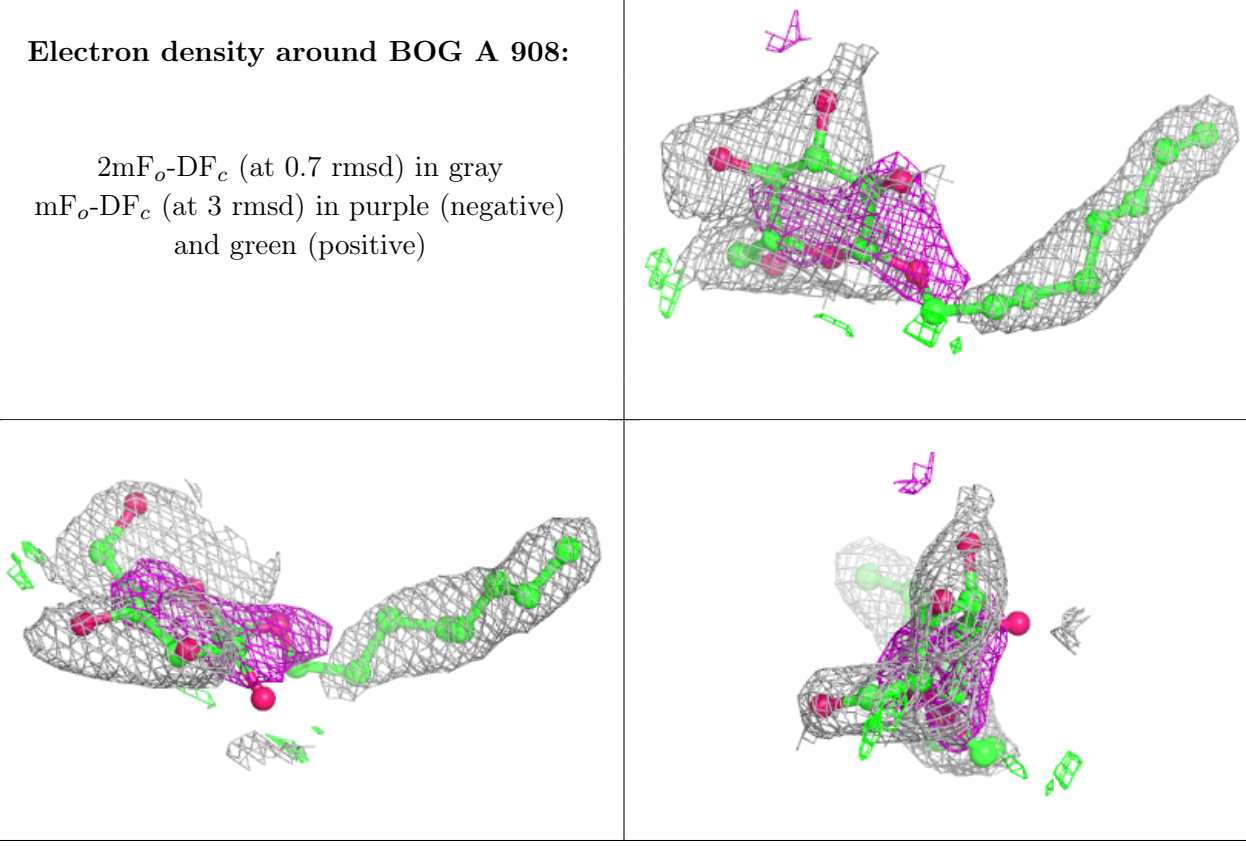






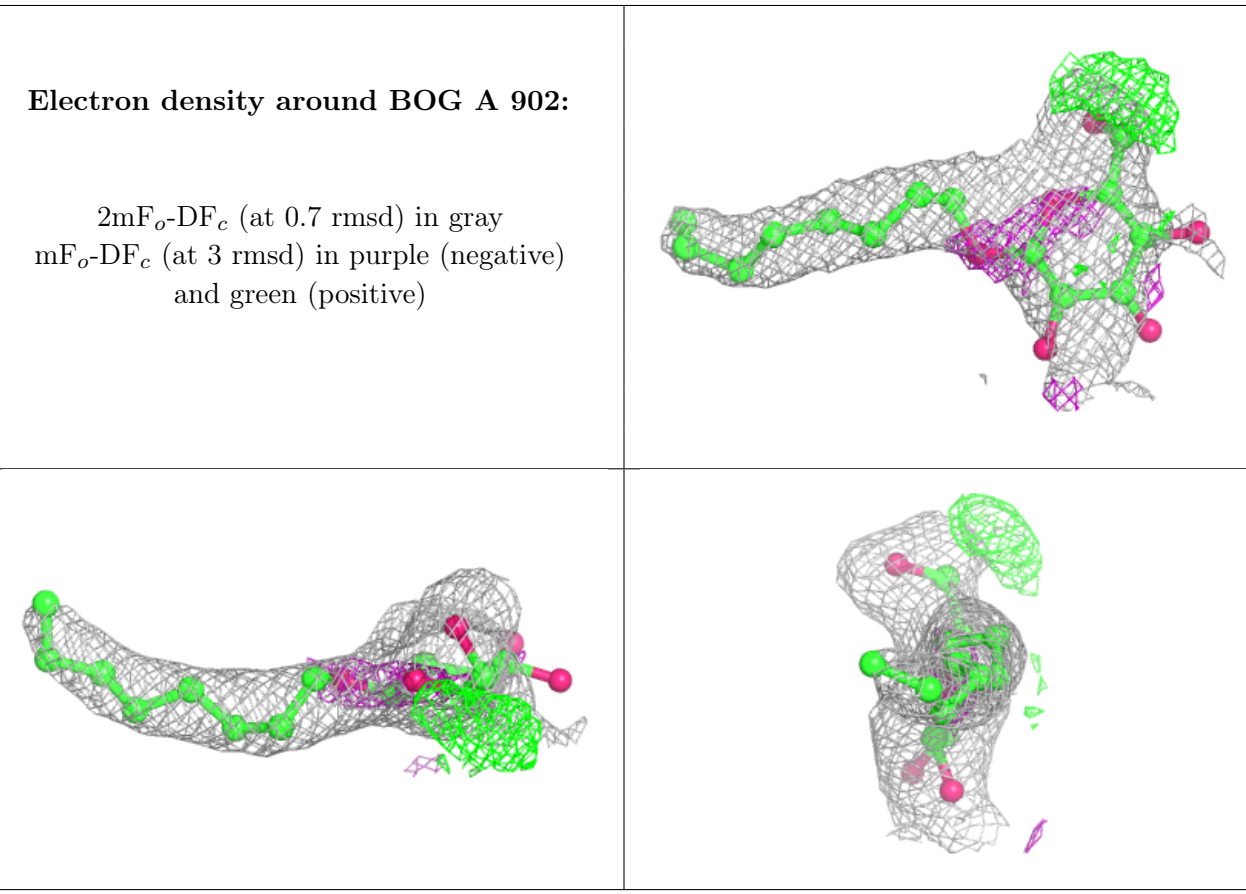
Electron density around BOG A 908:

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



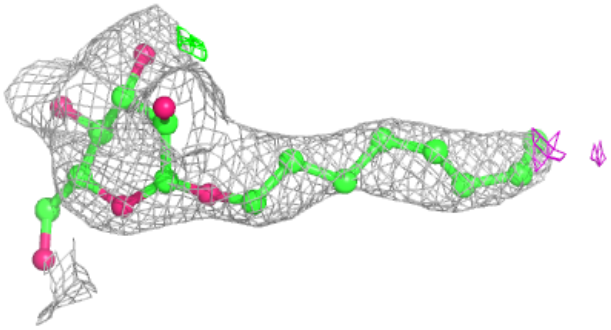
Electron density around BOG A 902:

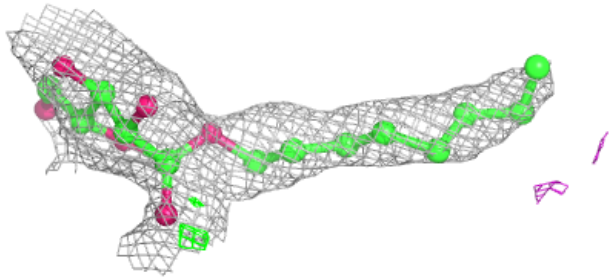
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

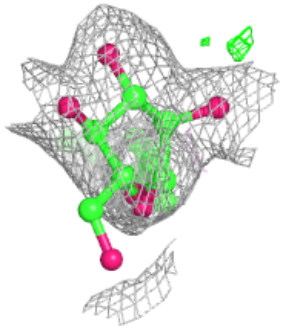


Electron density around BOG A 912:

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

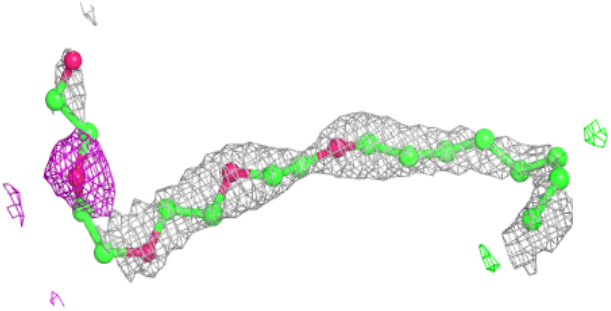


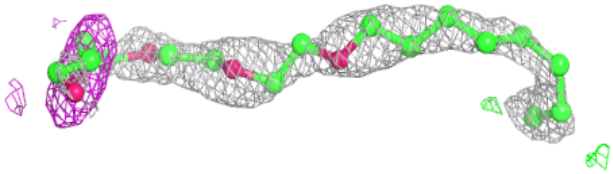


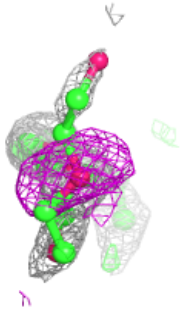


Electron density around C8E A 913:

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

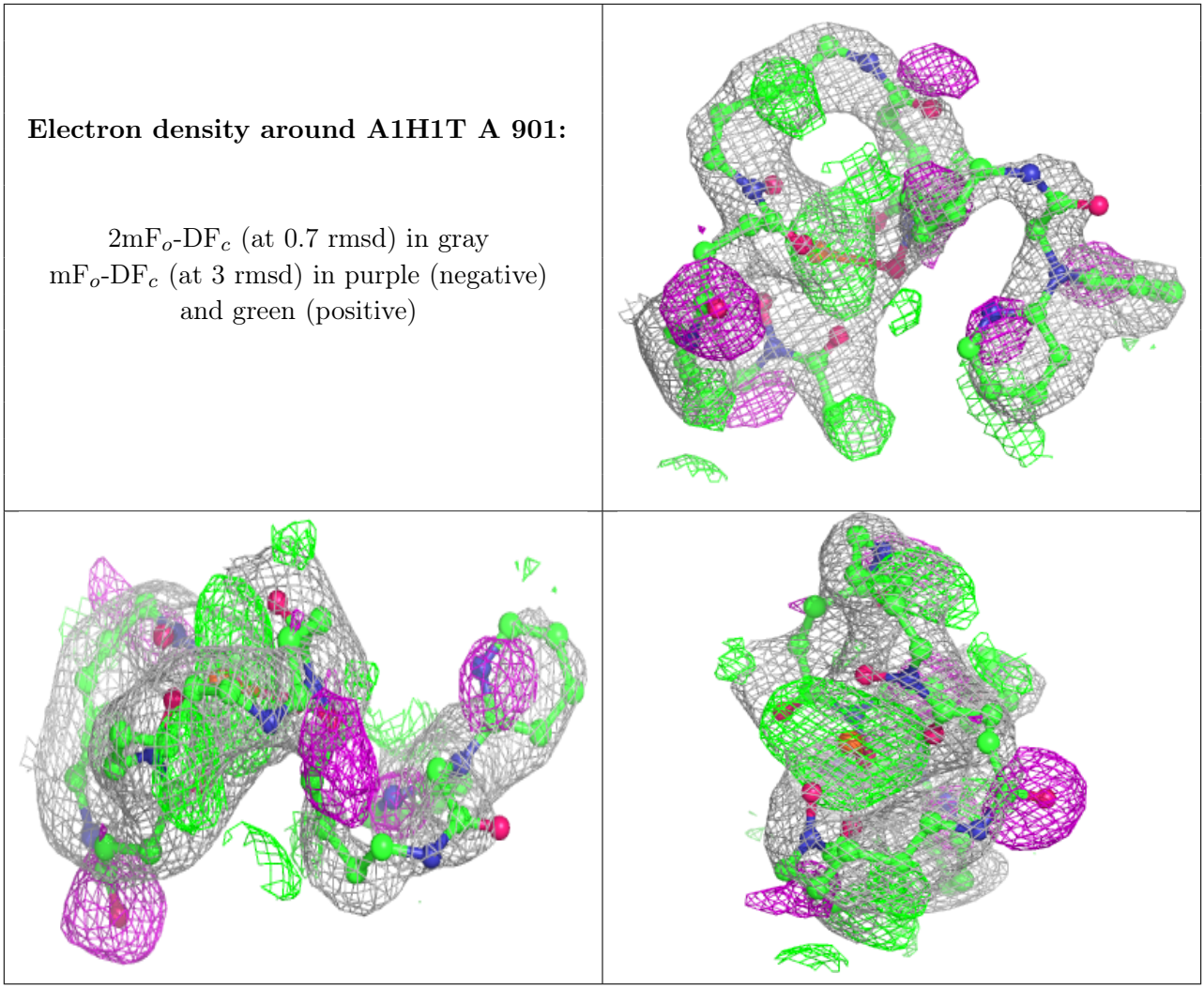






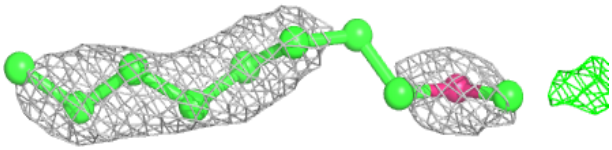
Electron density around A1H1T A 901:

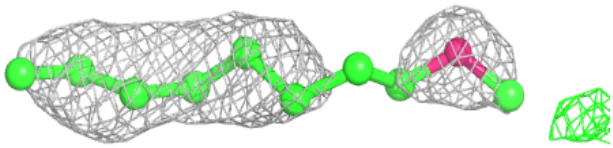
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

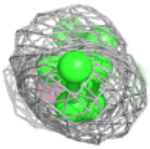


Electron density around C8E A 911:

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

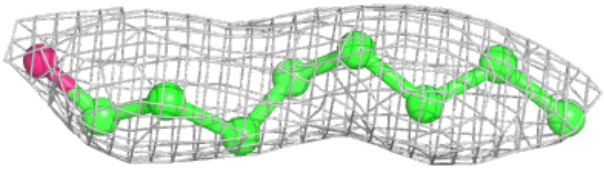


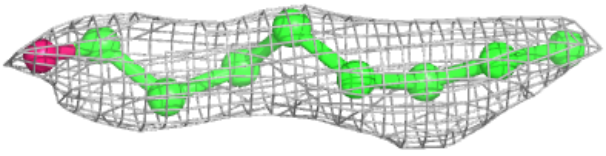


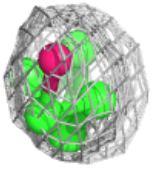


Electron density around BOG A 903:

$2mF_o$-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.