Full wwPDB X-ray Structure Validation Report (i)

Jan 14, 2024 – 12:14 pm GMT

PDB ID	:	6SVP
Title	:	Crystal structure of human GFAT-1 in complex with Glucose-6-Phosphate, L-Glu, and UDP-GlcNAc
Authors	:	Ruegenberg, S.; Horn, M.; Pichlo, C.; Allmeroth, K.; Baumann, U.; Denzel, M.S.
Deposited on	:	2019-09-18
Resolution	:	2.53 Å(reported)

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

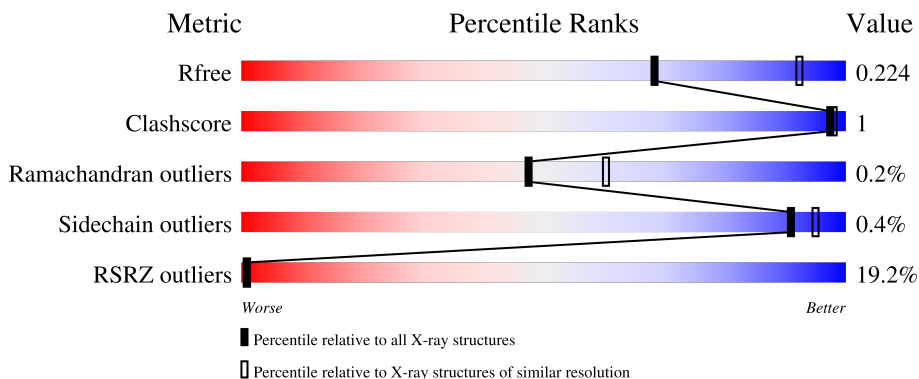|		
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

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 2.53 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		0.224
Clashscore		1
Ramachandran outliers		0.2%
Sidechain outliers		0.4%
RSRZ outliers		19.2%

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}	130704	1284 (2.56-2.52)
Clashscore	141614	1332 (2.56-2.52)
Ramachandran outliers	138981	1315 (2.56-2.52)
Sidechain outliers	138945	1315 (2.56-2.52)
RSRZ outliers	127900	1272 (2.56-2.52)

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	687	5% ... 92% ... • 5%
1	B	687	32% ... 92% ... • 5%

2   Entry composition ⓘ

There are 6 unique types of molecules in this entry. The entry contains 20962 atoms, of which 10448 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 Glutamine--fructose-6-phosphate aminotransferase [isomerizing] 1.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	653	Total	C	H	N	O	S	0	0	0
			10346	3261	5181	900	972	32			
1	B	652	Total	C	H	N	O	S	0	0	0
			10342	3255	5185	897	973	32			

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	299A	HIS	-	insertion	UNP Q06210
A	299B	HIS	-	insertion	UNP Q06210
A	299C	HIS	-	insertion	UNP Q06210
A	299D	HIS	-	insertion	UNP Q06210
A	299E	HIS	-	insertion	UNP Q06210
A	299F	HIS	-	insertion	UNP Q06210
B	299A	HIS	-	insertion	UNP Q06210
B	299B	HIS	-	insertion	UNP Q06210
B	299C	HIS	-	insertion	UNP Q06210
B	299D	HIS	-	insertion	UNP Q06210
B	299E	HIS	-	insertion	UNP Q06210
B	299F	HIS	-	insertion	UNP Q06210

- Molecule 2 is URIDINE-DIPHOSPHATE-N-ACETYLGLUCOSAMINE (three-letter code: UD1) (formula: $C_{17}H_{27}N_3O_{17}P_2$) (labeled as "Ligand of Interest" by depositor).
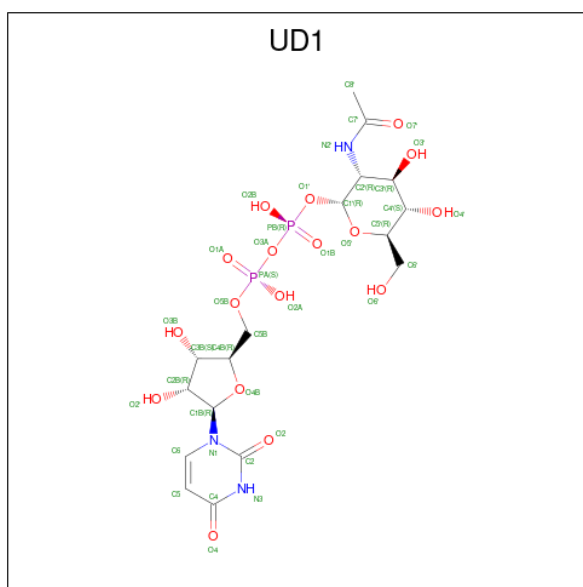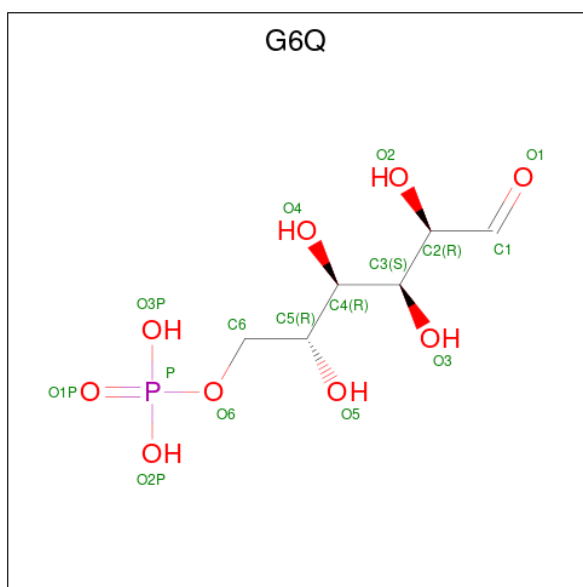
Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
2	A	1	Total	C	H	N	O	P	0	0
			63	17	24	3	17	2		
2	B	1	Total	C	H	N	O	P	0	0
			63	17	24	3	17	2		

- Molecule 3 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	1	Total	Mg	0	0
			1	1		
3	B	1	Total	Mg	0	0
			1	1		

- Molecule 4 is GLUCOSE-6-PHOSPHATE (three-letter code: G6Q) (formula: $C_6H_{13}O_9P$).

G6Q

Molecule diagram for G6Q

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	A	1	Total	C	H	O	P	0	0
			29	6	13	9	1		
4	B	1	Total	C	H	O	P	0	0
			29	6	13	9	1		

- Molecule 5 is GLUTAMIC ACID (three-letter code: GLU) (formula: $C_5H_9NO_4$).

GLU

Molecule diagram for GLU
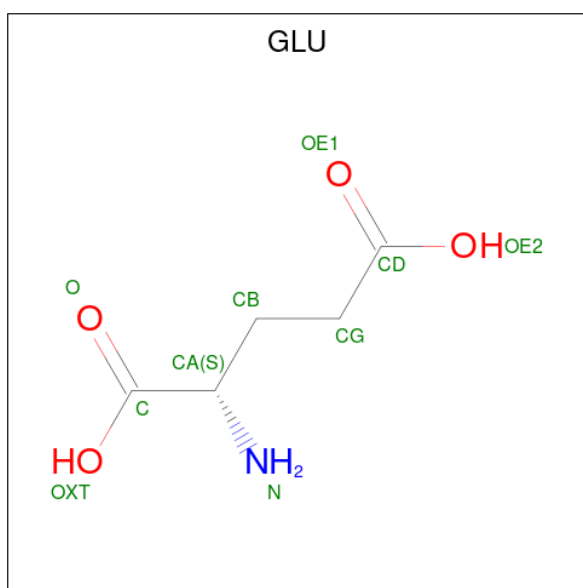
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
5	A	1	Total	C	H	N	O	0	0
			18	5	8	1	4		

- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	46	Total 46	O 46	0	0
6	B	24	Total 24	O 24	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: Glutamine--fructose-6-phosphate aminotransferase [isomerizing] 1
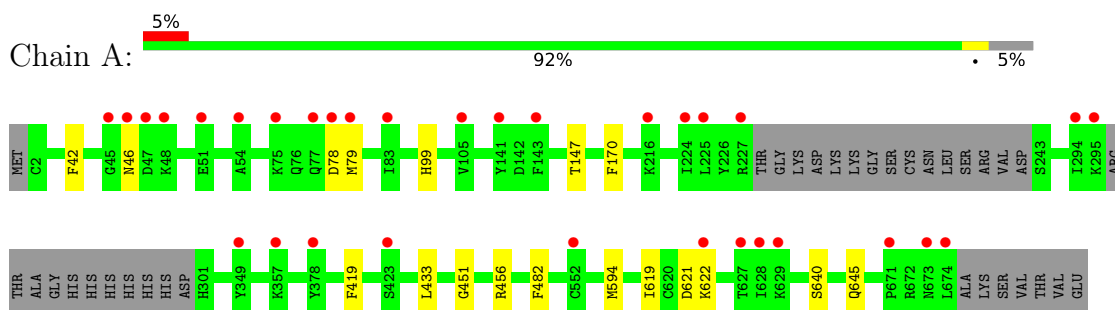
Chain A:

- Molecule 1: Glutamine--fructose-6-phosphate aminotransferase [isomerizing] 1

Chain B:
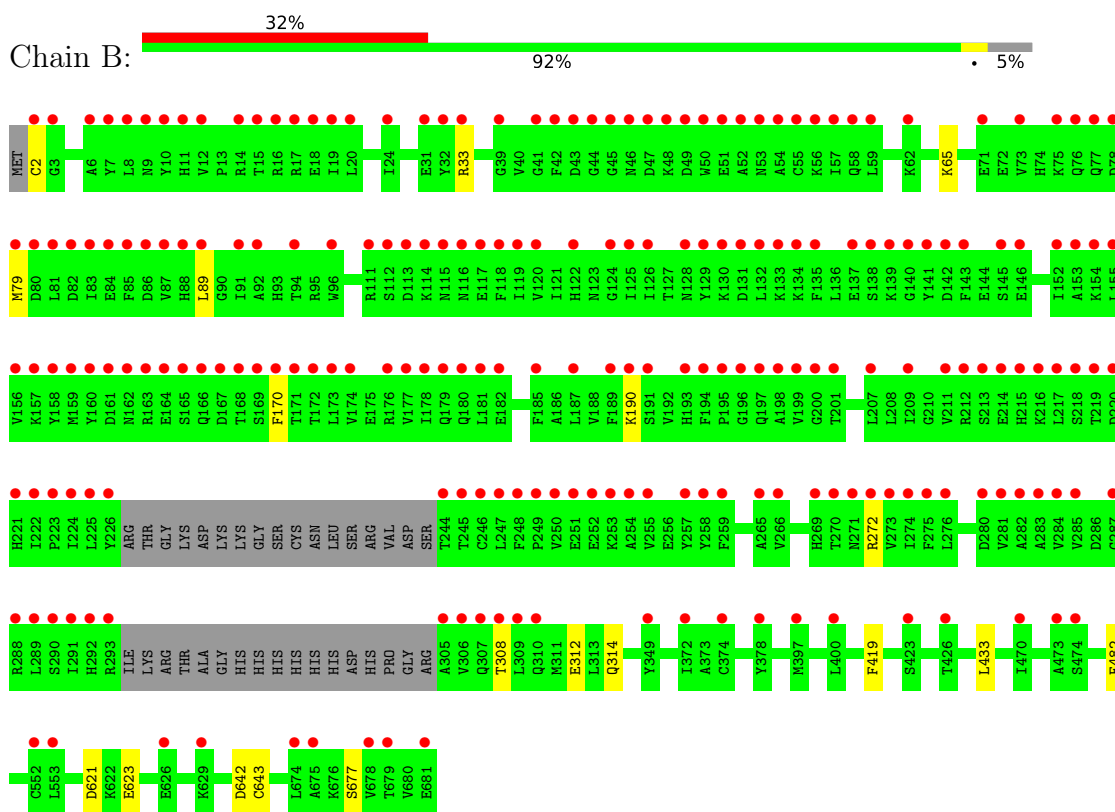
4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 41 21 2	Depositor
Cell constants a, b, c, α, β, γ	152.63Å 152.63Å 166.53Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.36 – 2.53 49.36 – 2.53	Depositor EDS
% Data completeness (in resolution range)	99.7 (49.36-2.53) 95.7 (49.36-2.53)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.22 (at 2.54Å)	Xtriage
Refinement program	PHENIX dev_2499	Depositor
R, R_{free}	0.197 , 0.224 0.197 , 0.224	Depositor DCC
R_{free} test set	1972 reflections (3.00%)	wwPDB-VP
Wilson B-factor (Å^2)	52.0	Xtriage
Anisotropy	0.126	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.38 , 54.9	EDS
L-test for twinning[2]	$< |L| > = 0.49, < L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	20962	wwPDB-VP
Average B, all atoms (Å^2)	101.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.41% 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: MG, G6Q, UD1

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	0.24	0/5254	0.42	0/7091
1	B	0.24	0/5244	0.42	0/7077
All	All	0.24	0/10498	0.42	0/14168

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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	5165	5181	5181	9	0
1	B	5157	5185	5183	7	0
2	A	39	24	25	0	0
2	B	39	24	25	0	0
3	A	1	0	0	0	0
3	B	1	0	0	0	0
4	A	16	13	11	0	0
4	B	16	13	11	0	0
5	A	10	8	5	0	0
6	A	46	0	0	0	0
6	B	24	0	0	0	0
All	All	10514	10448	10441	16	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 (16) 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:640:SER:N	1:A:645:GLN:OE1	2.24	0.71
1:B:2:CYS:N	1:B:33:ARG:O	2.33	0.61
1:A:621:ASP:OD1	1:A:622:LYS:N	2.36	0.58
1:A:46:ASN:ND2	1:A:78:ASP:O	2.37	0.57
1:B:272:ARG:NH1	1:B:308:THR:OG1	2.45	0.46
1:B:312:GLU:OE1	1:B:314:GLN:NE2	2.49	0.46
1:A:451:GLY:O	1:A:456:ARG:NE	2.48	0.45
1:A:42:PHE:HZ	1:A:79:MET:HE1	1.81	0.45
1:B:419:PHE:CZ	1:B:433:LEU:HA	2.52	0.45
1:B:89:LEU:O	1:B:190:LYS:NZ	2.40	0.45
1:B:642:ASP:OD1	1:B:643:CYS:N	2.49	0.45
1:B:621:ASP:OD1	1:B:623:GLU:N	2.50	0.44
1:A:99:HIS:O	1:A:147:THR:HA	2.17	0.43
1:A:419:PHE:CZ	1:A:433:LEU:HA	2.54	0.42
1:A:42:PHE:CZ	1:A:79:MET:HE1	2.55	0.42
1:A:594:MET:HE1	1:A:619:ILE:HG22	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	647/687 (94%)	629 (97%)	18 (3%)	0	100	100
1	B	646/687 (94%)	612 (95%)	32 (5%)	2 (0%)	41	51
All	All	1293/1374 (94%)	1241 (96%)	50 (4%)	2 (0%)	47	60

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	65	LYS
1	B	677	SER

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	569/601 (95%)	567 (100%)	2 (0%)	91	95
1	B	570/601 (95%)	567 (100%)	3 (0%)	88	93
All	All	1139/1202 (95%)	1134 (100%)	5 (0%)	91	95

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

Mol	Chain	Res	Type
1	A	170	PHE
1	A	482	PHE
1	B	79	MET
1	B	170	PHE
1	B	482	PHE

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

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 ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 7 ligands modelled in this entry, 2 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	#$|Z| > 2$
2	UD1	A	701	3	38,41,41	3.10	19 (50%)	57,62,62	1.49	8 (14%)
4	G6Q	A	703	-	14,15,15	0.47	0	20,21,21	0.75	0
2	UD1	B	701	3	38,41,41	3.11	18 (47%)	57,62,62	1.49	8 (14%)
5	GLU	A	704	-	8,9,9	1.05	1 (12%)	10,11,11	1.30	2 (20%)
4	G6Q	B	703	-	14,15,15	0.41	0	20,21,21	0.69	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	UD1	A	701	3	-	2/26/63/63	0/3/3/3
4	G6Q	A	703	-	-	12/18/20/20	-
2	UD1	B	701	3	-	1/26/63/63	0/3/3/3
5	GLU	A	704	-	-	3/9/9/9	-
4	G6Q	B	703	-	-	4/18/20/20	-

All (38) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	701	UD1	C3B-C2B	-8.27	1.30	1.53
2	A	701	UD1	C3B-C2B	-8.26	1.30	1.53
2	B	701	UD1	C2-N3	7.04	1.50	1.38
2	A	701	UD1	C2-N1	7.03	1.49	1.38
2	B	701	UD1	C2-N1	7.01	1.49	1.38
2	A	701	UD1	C2-N3	6.80	1.50	1.38
2	A	701	UD1	C6-C5	5.70	1.48	1.35
2	B	701	UD1	C6-C5	5.63	1.48	1.35
2	A	701	UD1	O4B-C1B	-4.90	1.30	1.42

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	701	UD1	O4B-C1B	-4.86	1.30	1.42
2	B	701	UD1	O4B-C4B	4.44	1.54	1.45
2	A	701	UD1	O4B-C4B	4.37	1.54	1.45
2	B	701	UD1	C4-N3	4.29	1.46	1.38
2	A	701	UD1	C4-N3	4.16	1.46	1.38
2	A	701	UD1	C5B-C4B	-3.41	1.41	1.51
2	B	701	UD1	C5B-C4B	-3.29	1.41	1.51
2	B	701	UD1	O5'-C1'	3.28	1.50	1.41
2	A	701	UD1	O5'-C1'	3.19	1.50	1.41
2	A	701	UD1	C7'-N2'	3.19	1.45	1.34
2	B	701	UD1	C7'-N2'	3.13	1.45	1.34
2	A	701	UD1	O3B-C3B	3.04	1.50	1.43
2	B	701	UD1	O3B-C3B	3.02	1.50	1.43
2	B	701	UD1	C6-N1	2.93	1.45	1.38
2	A	701	UD1	C6-N1	2.92	1.45	1.38
2	B	701	UD1	C2B-C1B	2.88	1.62	1.53
2	A	701	UD1	C2B-C1B	2.85	1.62	1.53
2	A	701	UD1	O4-C4	-2.77	1.19	1.24
2	B	701	UD1	O4-C4	-2.69	1.19	1.24
2	A	701	UD1	C5-C4	2.39	1.48	1.43
2	B	701	UD1	C5-C4	2.35	1.48	1.43
2	A	701	UD1	C3'-C2'	-2.34	1.48	1.53
2	B	701	UD1	C2'-N2'	2.32	1.49	1.45
2	A	701	UD1	O2-C2	-2.25	1.18	1.23
2	B	701	UD1	C3'-C2'	-2.25	1.48	1.53
2	A	701	UD1	C2'-N2'	2.20	1.49	1.45
2	B	701	UD1	O2-C2	-2.17	1.19	1.23
5	A	704	GLU	OXT-C	-2.14	1.23	1.30
2	A	701	UD1	PB-O1'	2.06	1.65	1.60

All (18) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	701	UD1	C4-N3-C2	-5.08	119.88	126.58
2	B	701	UD1	C4-N3-C2	-4.98	120.01	126.58
2	A	701	UD1	N3-C2-N1	3.60	119.66	114.89
2	B	701	UD1	N3-C2-N1	3.41	119.42	114.89
2	A	701	UD1	C5-C4-N3	3.31	119.80	114.84
2	B	701	UD1	C5-C4-N3	3.27	119.73	114.84
2	B	701	UD1	O3A-PB-O1'	3.27	109.07	102.48
2	A	701	UD1	O3A-PB-O1'	3.27	109.07	102.48
2	B	701	UD1	O4-C4-C5	-3.00	119.89	125.16

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	A	704	GLU	OXT-C-O	-2.79	117.75	124.09
2	A	701	UD1	O4-C4-C5	-2.78	120.27	125.16
2	B	701	UD1	PB-O3A-PA	-2.57	123.99	132.83
2	B	701	UD1	C8'-C7'-N2'	2.36	120.09	116.10
2	A	701	UD1	C8'-C7'-N2'	2.33	120.05	116.10
5	A	704	GLU	OXT-C-CA	2.27	121.10	113.38
2	A	701	UD1	O5'-C1'-O1'	-2.22	108.46	111.36
2	A	701	UD1	PB-O3A-PA	-2.14	125.48	132.83
2	B	701	UD1	C3B-C2B-C1B	2.07	105.36	101.43

There are no chirality outliers.
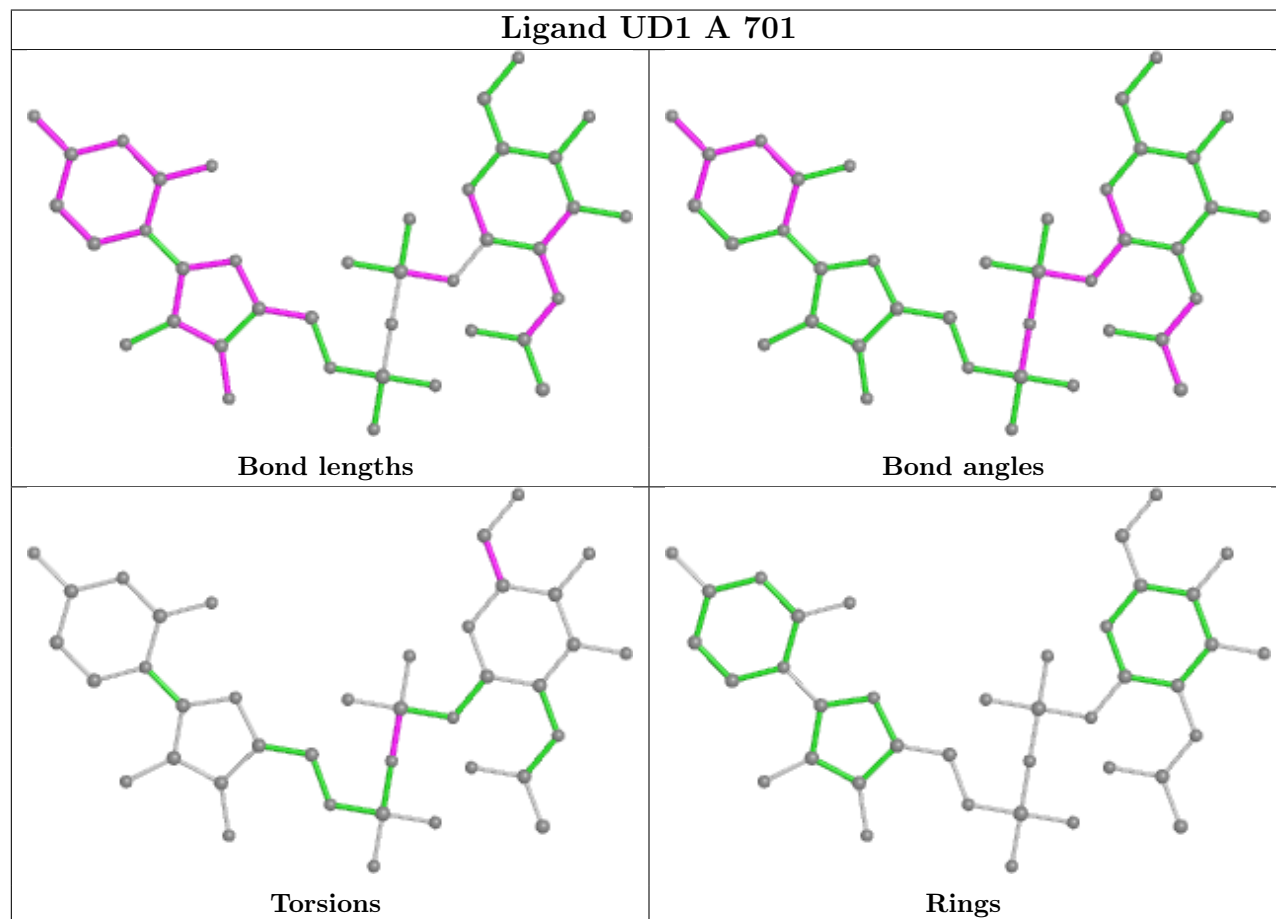
All (22) torsion outliers are listed below:

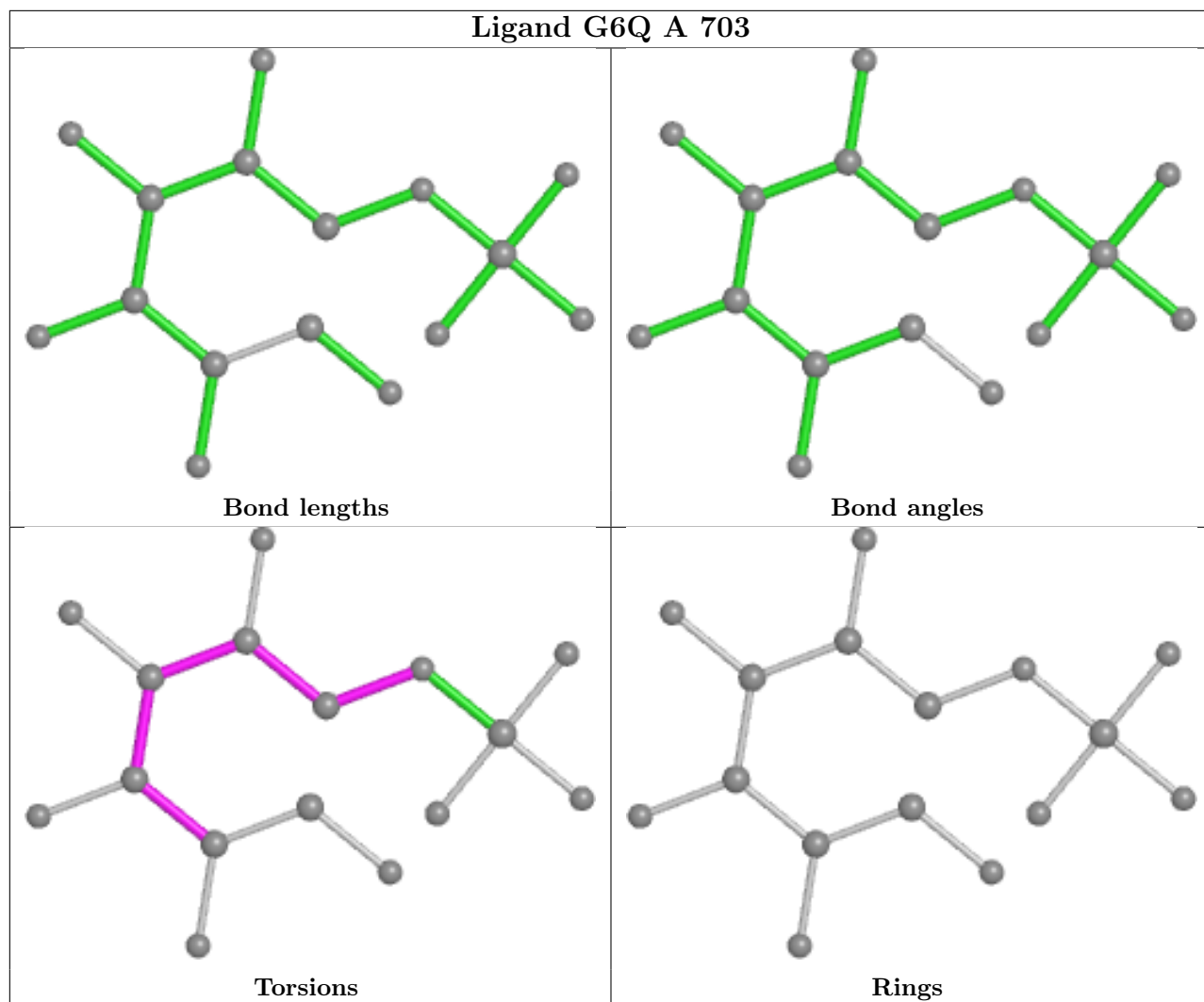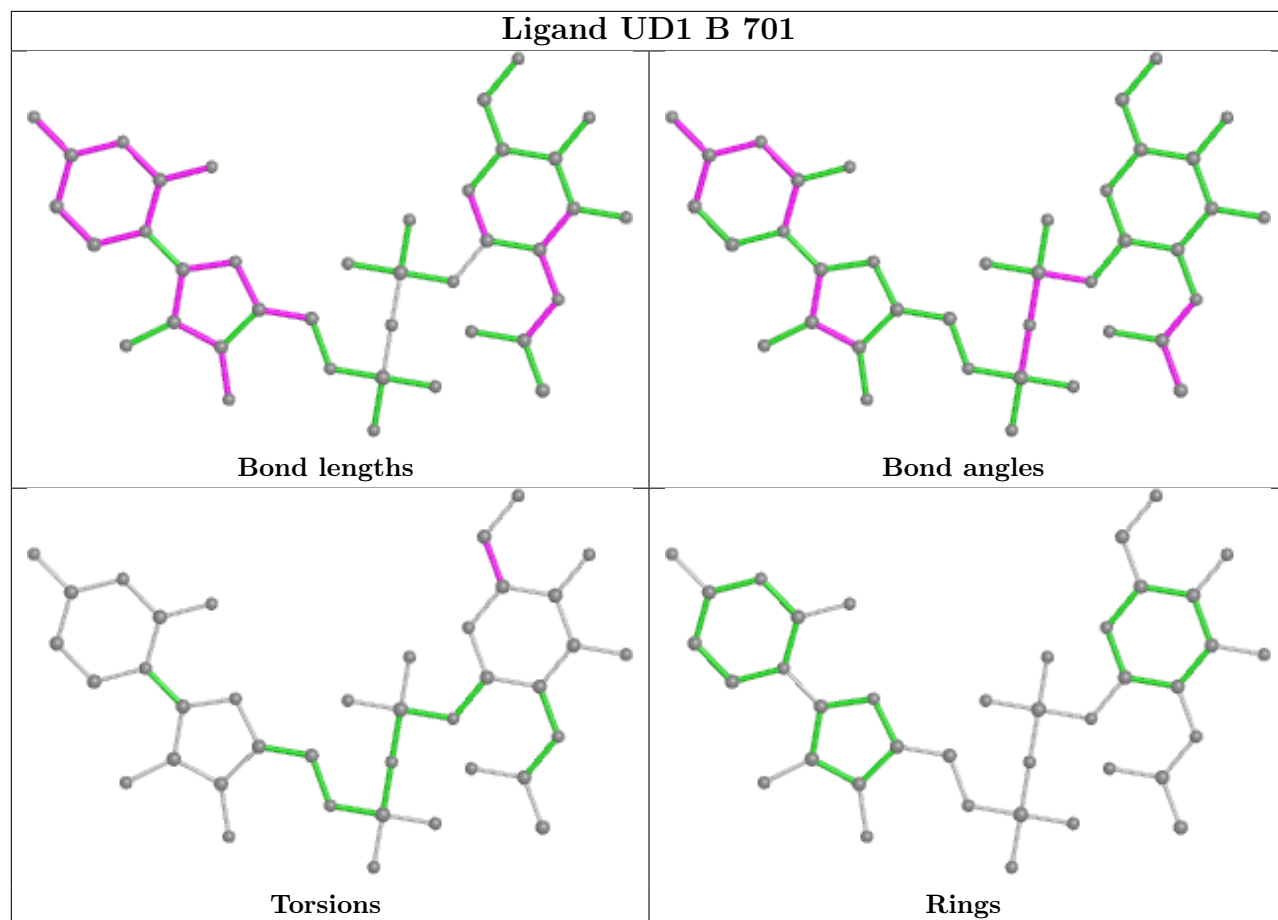| Mol	Chain	Res	Type	Atoms
4	A	703	G6Q	C1-C2-C3-C4
4	A	703	G6Q	O2-C2-C3-C4
4	A	703	G6Q	O2-C2-C3-O3
4	A	703	G6Q	C3-C4-C5-C6
4	A	703	G6Q	C3-C4-C5-O5
4	A	703	G6Q	O4-C4-C5-O5
4	A	703	G6Q	C4-C5-C6-O6
4	A	703	G6Q	O5-C5-C6-O6
4	B	703	G6Q	O2-C2-C3-O3
4	A	703	G6Q	O4-C4-C5-C6
4	A	703	G6Q	C1-C2-C3-O3
2	B	701	UD1	C4'-C5'-C6'-O6'
4	B	703	G6Q	C1-C2-C3-O3
2	A	701	UD1	PA-O3A-PB-O1'
2	A	701	UD1	C4'-C5'-C6'-O6'
4	B	703	G6Q	C1-C2-C3-C4
4	A	703	G6Q	C5-C6-O6-P
5	A	704	GLU	OE1-CD-CG-CB
5	A	704	GLU	OE2-CD-CG-CB
4	B	703	G6Q	O2-C2-C3-C4
4	A	703	G6Q	C2-C3-C4-O4
5	A	704	GLU	OXT-C-CA-N

There are no ring outliers.
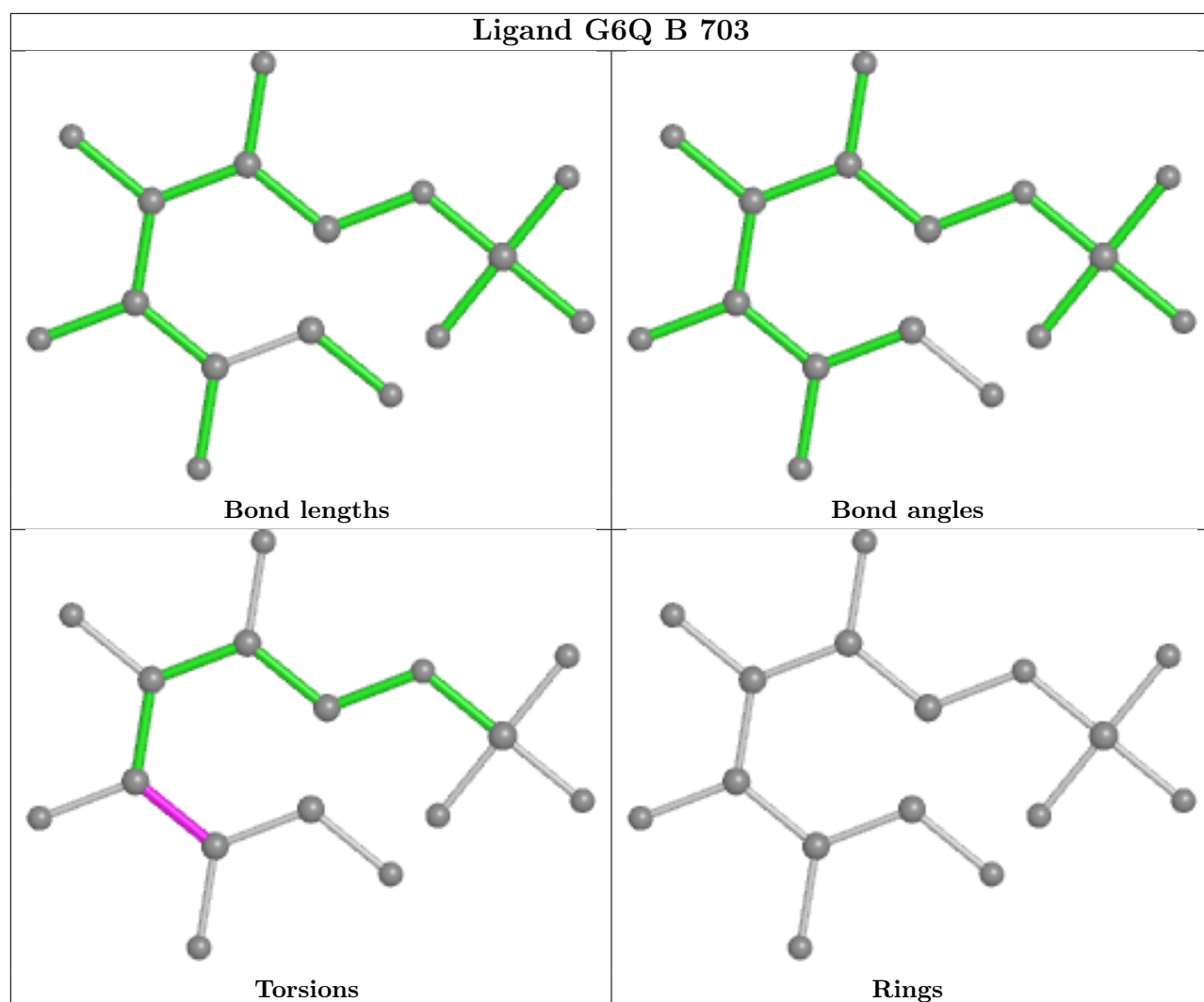
No monomer is involved in short contacts.

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 UD1 A 701

Bond lengths

Bond angles

Torsions

Rings

Ligand G6Q A 703

Bond lengths

Bond angles

Torsions

Rings

Ligand UD1 B 701

Bond lengths

Bond angles

Torsions

Rings

Ligand G6Q B 703

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(Å^2)	Q<0.9
1	A	653/687 (95%)	0.53	32 (4%)	29	35	41, 61, 120, 197	0
1	B	652/687 (94%)	2.20	219 (33%)	0	0	44, 86, 216, 277	0
All	All	1305/1374 (94%)	1.37	251 (19%)	1	1	41, 68, 199, 277	0

All (251) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	170	PHE	16.9
1	B	41	GLY	14.5
1	B	79	MET	14.1
1	B	306	VAL	13.8
1	B	247	LEU	13.7
1	B	77	GLN	13.5
1	B	257	TYR	12.1
1	B	19	ILE	11.9
1	B	52	ALA	11.0
1	B	85	PHE	10.9
1	B	217	LEU	10.8
1	B	281	VAL	10.7
1	B	57	ILE	10.6
1	B	155	LEU	10.1
1	B	15	THR	10.1
1	B	305	ALA	10.0
1	B	50	TRP	9.9
1	B	222	ILE	9.8
1	B	225	LEU	9.7
1	B	53	ASN	9.4
1	B	160	TYR	9.4
1	B	245	THR	9.3
1	B	78	ASP	9.3
1	B	54	ALA	9.2

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Mol	Chain	Res	Type	RSRZ
1	B	168	THR	9.1
1	B	91	ILE	9.0
1	B	200	GLY	8.9
1	B	258	TYR	8.9
1	B	223	PRO	8.8
1	B	75	LYS	8.7
1	B	250	VAL	8.6
1	B	46	ASN	8.5
1	B	246	CYS	8.4
1	B	51	GLU	8.4
1	B	73	VAL	8.3
1	B	215	HIS	8.3
1	B	220	ASP	8.2
1	B	254	ALA	8.1
1	B	309	LEU	8.1
1	B	45	GLY	8.0
1	B	44	GLY	8.0
1	B	8	LEU	7.8
1	B	47	ASP	7.8
1	B	135	PHE	7.7
1	B	224	ILE	7.5
1	B	189	PHE	7.5
1	B	291	ILE	7.4
1	B	218	SER	7.4
1	B	118	PHE	7.3
1	B	201	THR	7.3
1	B	174	VAL	7.1
1	B	274	ILE	7.1
1	B	198	ALA	7.1
1	B	221	HIS	7.1
1	B	143	PHE	7.0
1	B	251	GLU	7.0
1	B	219	THR	7.0
1	B	56	LYS	7.0
1	B	213	SER	7.0
1	B	10	TYR	7.0
1	B	176	ARG	7.0
1	B	20	LEU	7.0
1	B	55	CYS	6.8
1	B	129	TYR	6.8
1	B	249	PRO	6.8
1	B	49	ASP	6.7

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Mol	Chain	Res	Type	RSRZ
1	A	674	LEU	6.7
1	B	248	PHE	6.7
1	B	48	LYS	6.7
1	B	158	TYR	6.4
1	B	287	GLY	6.3
1	B	58	GLN	6.3
1	B	156	VAL	6.3
1	B	159	MET	6.3
1	B	165	SER	6.2
1	B	76	GLN	6.2
1	B	259	PHE	6.2
1	B	177	VAL	6.1
1	B	169	SER	6.0
1	B	81	LEU	6.0
1	B	292	HIS	6.0
1	B	289	LEU	6.0
1	B	290	SER	5.9
1	B	272	ARG	5.7
1	B	173	LEU	5.7
1	B	293	ARG	5.7
1	B	275	PHE	5.7
1	B	284	VAL	5.7
1	A	79	MET	5.7
1	B	154	LYS	5.6
1	B	167	ASP	5.6
1	B	24	ILE	5.5
1	B	285	VAL	5.5
1	B	134	LYS	5.4
1	B	199	VAL	5.4
1	B	141	TYR	5.4
1	B	16	ARG	5.4
1	B	190	LYS	5.4
1	B	120	VAL	5.3
1	B	153	ALA	5.3
1	B	196	GLY	5.2
1	B	137	GLU	5.2
1	B	7	TYR	5.0
1	B	194	PHE	5.0
1	B	171	THR	5.0
1	B	273	VAL	5.0
1	B	2	CYS	5.0
1	B	18	GLU	5.0

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Mol	Chain	Res	Type	RSRZ
1	B	116	ASN	4.9
1	B	89	LEU	4.9
1	B	132	LEU	4.9
1	B	216	LYS	4.8
1	B	145	SER	4.8
1	B	308	THR	4.8
1	B	138	SER	4.8
1	B	681	GLU	4.8
1	B	282	ALA	4.7
1	B	244	THR	4.6
1	B	209	ILE	4.5
1	B	253	LYS	4.5
1	B	80	ASP	4.4
1	B	111	ARG	4.4
1	B	157	LYS	4.4
1	B	195	PRO	4.4
1	B	86	ASP	4.4
1	B	117	GLU	4.4
1	B	83	ILE	4.3
1	B	88	HIS	4.3
1	B	43	ASP	4.3
1	B	152	ILE	4.2
1	B	197	GLN	4.2
1	B	191	SER	4.2
1	B	255	VAL	4.2
1	B	182	GLU	4.0
1	B	211	VAL	4.0
1	B	11	HIS	4.0
1	B	252	GLU	3.9
1	B	130	LYS	3.9
1	B	42	PHE	3.9
1	B	266	VAL	3.9
1	B	133	LYS	3.9
1	B	166	GLN	3.9
1	B	14	ARG	3.8
1	B	288	ARG	3.8
1	B	164	GLU	3.8
1	B	226	TYR	3.8
1	B	17	ARG	3.7
1	B	115	ASN	3.7
1	B	187	LEU	3.7
1	B	9	ASN	3.6

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Mol	Chain	Res	Type	RSRZ
1	B	32	TYR	3.6
1	B	349	TYR	3.6
1	B	172	THR	3.6
1	B	125	ILE	3.6
1	B	12	VAL	3.6
1	B	128	ASN	3.6
1	B	180	GLN	3.5
1	B	181	LEU	3.5
1	B	131	ASP	3.5
1	A	54	ALA	3.5
1	B	96	TRP	3.5
1	B	112	SER	3.4
1	A	77	GLN	3.4
1	B	163	ARG	3.4
1	B	185	PHE	3.4
1	B	140	GLY	3.3
1	B	193	HIS	3.3
1	B	3	GLY	3.3
1	B	114	LYS	3.3
1	B	6	ALA	3.2
1	A	78	ASP	3.2
1	B	212	ARG	3.2
1	B	283	ALA	3.1
1	B	71	GLU	3.1
1	B	675	ALA	3.1
1	B	276	LEU	3.0
1	A	673	ASN	2.9
1	A	48	LYS	2.9
1	B	270	THR	2.9
1	A	105	VAL	2.9
1	A	83	ILE	2.9
1	B	142	ASP	2.9
1	A	224	ILE	2.9
1	A	622	LYS	2.9
1	B	629	LYS	2.9
1	B	674	LEU	2.8
1	B	374	CYS	2.8
1	B	84	GLU	2.8
1	B	82	ASP	2.8
1	B	310	GLN	2.8
1	A	295	LYS	2.7
1	B	126	ILE	2.7

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Mol	Chain	Res	Type	RSRZ
1	A	294	ILE	2.7
1	B	87	VAL	2.6
1	B	271	ASN	2.6
1	B	31	GLU	2.6
1	B	307	GLN	2.6
1	B	162	ASN	2.6
1	B	178	ILE	2.6
1	B	679	THR	2.5
1	B	59	LEU	2.5
1	B	146	GLU	2.5
1	B	678	VAL	2.5
1	B	139	LYS	2.5
1	B	265	ALA	2.5
1	A	627	THR	2.5
1	B	124	GLY	2.5
1	A	143	PHE	2.4
1	B	92	ALA	2.4
1	A	141	TYR	2.4
1	B	62	LYS	2.4
1	B	94	THR	2.4
1	A	75	LYS	2.3
1	A	357	LYS	2.3
1	A	349	TYR	2.3
1	B	378	TYR	2.3
1	B	397	MET	2.3
1	B	423	SER	2.3
1	B	214	GLU	2.3
1	B	33	ARG	2.2
1	A	51	GLU	2.2
1	A	46	ASN	2.2
1	B	426	THR	2.2
1	B	269	HIS	2.2
1	B	372	ILE	2.2
1	B	161	ASP	2.2
1	B	473	ALA	2.2
1	A	227	ARG	2.2
1	A	628	ILE	2.1
1	B	119	ILE	2.1
1	B	280	ASP	2.1
1	B	39	GLY	2.1
1	A	629	LYS	2.1
1	A	225	LEU	2.1

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Mol	Chain	Res	Type	RSRZ
1	B	179	GLN	2.1
1	A	423	SER	2.1
1	B	207	LEU	2.1
1	A	45	GLY	2.1
1	B	470	ILE	2.1
1	B	474	SER	2.1
1	B	552	CYS	2.1
1	A	47	ASP	2.0
1	A	671	PRO	2.0
1	B	626	GLU	2.0
1	B	400	LEU	2.0
1	A	552	CYS	2.0
1	B	122	HIS	2.0
1	B	553	LEU	2.0
1	A	378	TYR	2.0
1	B	113	ASP	2.0
1	A	216	LYS	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 ⓘ

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, 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	MG	B	702	1/1	0.89	0.19	54,54,54,54	0
5	GLU	A	704	10/10	0.91	0.19	81,85,103,103	0
3	MG	A	702	1/1	0.93	0.25	41,41,41,41	0
2	UD1	B	701	39/39	0.94	0.14	65,87,111,113	0
4	G6Q	A	703	16/16	0.96	0.28	44,54,66,73	0
4	G6Q	B	703	16/16	0.97	0.30	50,59,69,78	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($Å^2$)	Q<0.9
2	UD1	A	701	39/39	0.97	0.15	48,63,84,89	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.
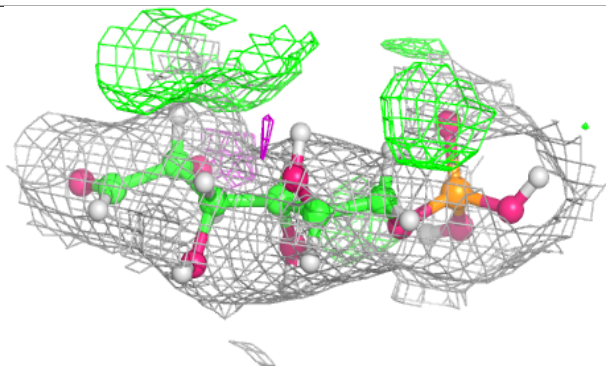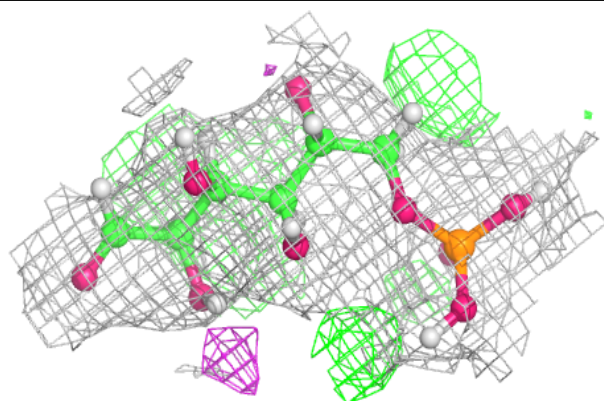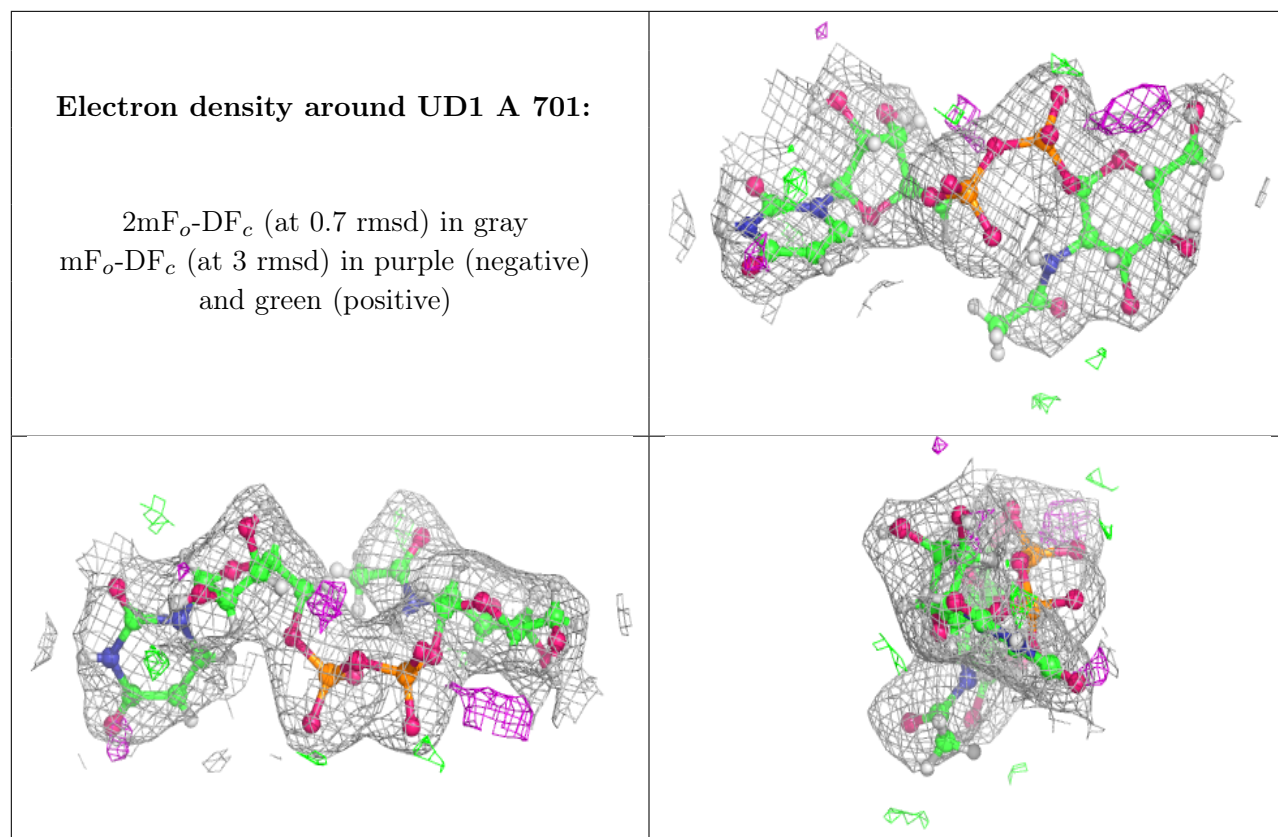
Electron density around UD1 B 701:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
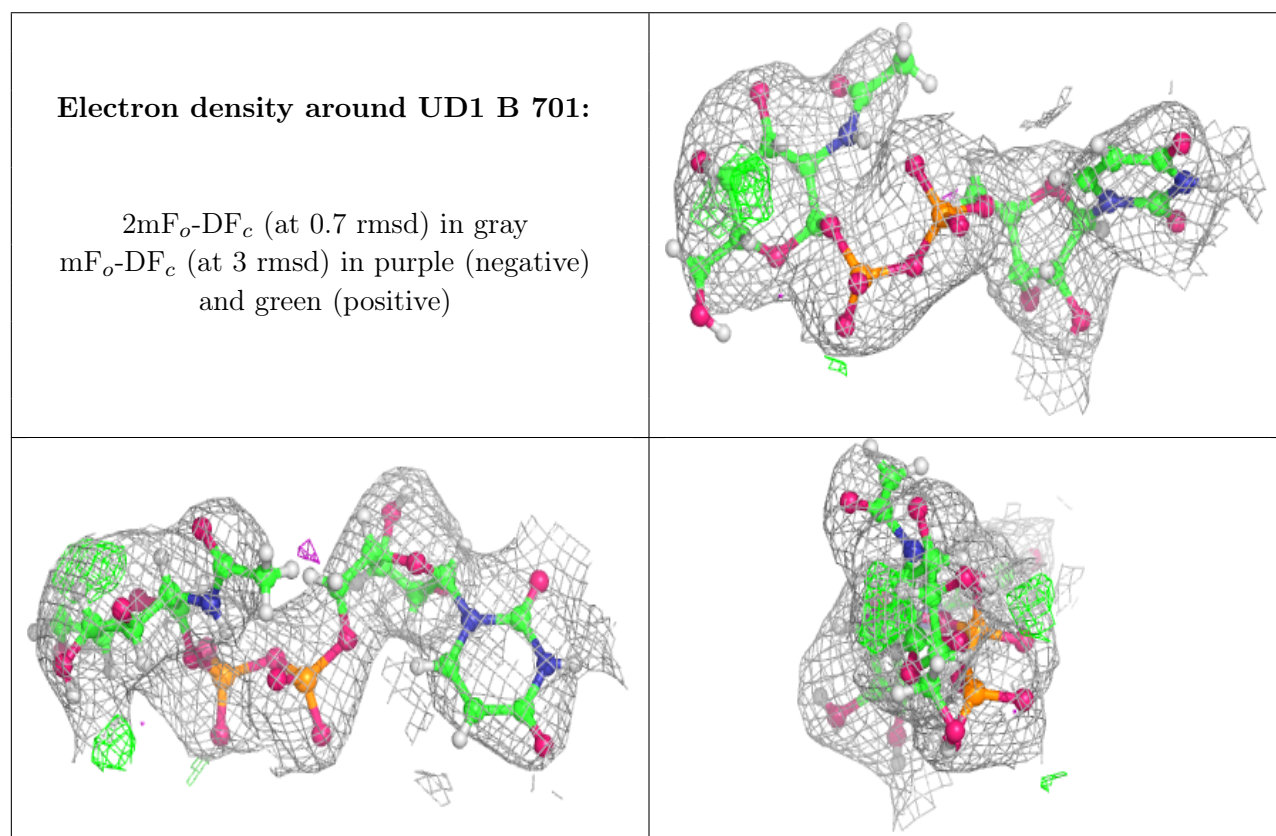
Electron density around G6Q A 703:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
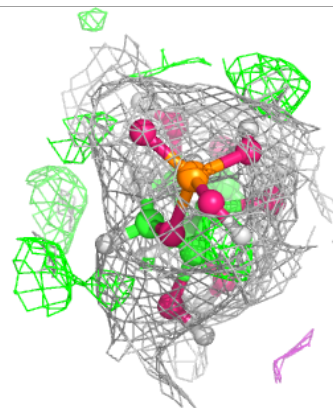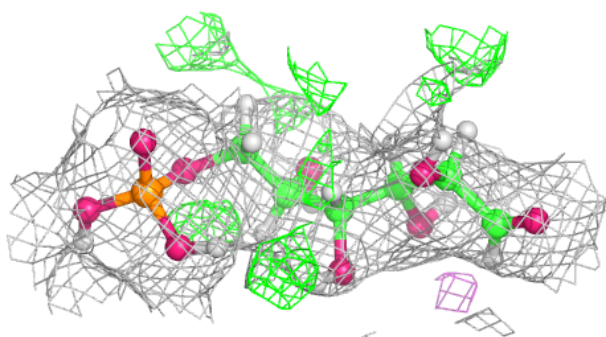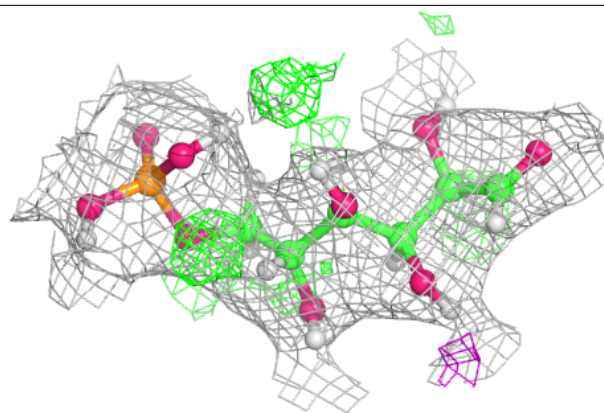
Electron density around G6Q B 703:

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

Electron density around UD1 A 701:

$2mF_o$-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.