wwPDB X-ray Structure Validation Summary Report (i)

Mar 5, 2024 – 12:49 PM EST

PDB ID	:	2Z86
Title	:	Crystal structure of chondroitin polymerase from Escherichia coli strain K4 (K4CP) complexed with UDP-GlcUA and UDP
Authors	:	Osawa, T.; Sugiura, N.; Shimada, H.; Hirooka, R.; Tsuji, A.; Kimura, M.; Kimata, K.; Kakuta, Y.
Deposited on	:	2007-09-03
Resolution	:	2.40 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:

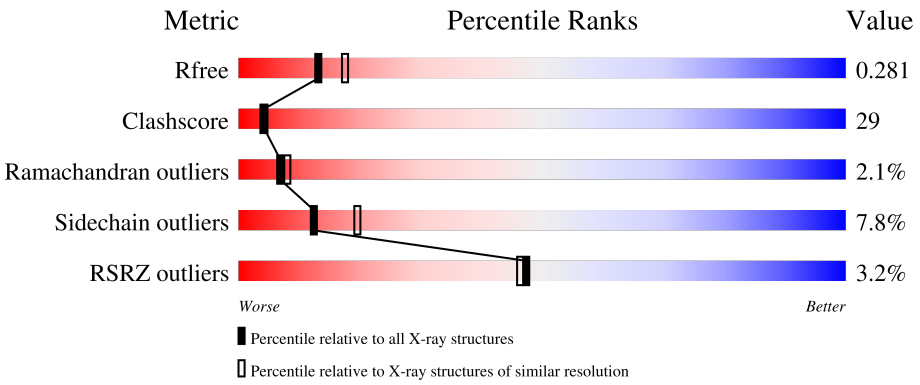
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.40 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	3907 (2.40-2.40)
Clashscore	141614	4398 (2.40-2.40)
Ramachandran outliers	138981	4318 (2.40-2.40)
Sidechain outliers	138945	4319 (2.40-2.40)
RSRZ outliers	127900	3811 (2.40-2.40)

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	625	4%, 44%, 43%, 6%, 7%
1	B	625	2%, 50%, 38%, 8%, •
1	C	625	2%, 53%, 38%, 5%, •
1	D	625	5%, 51%, 39%, 5%, 5%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	UGA	A	684	-	-	X	-

2 Entry composition (i)

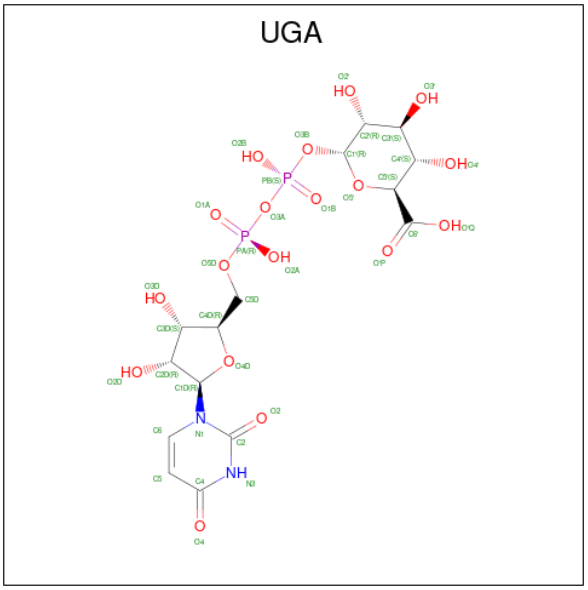
There are 5 unique types of molecules in this entry. The entry contains 20192 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Chondroitin synthase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	580	4736	3023	805	884	24	24	0	0
1	B	601	4890	3115	835	916	24	25	0	0
1	C	603	4906	3124	835	923	24	25	0	0
1	D	594	4833	3079	824	906	24	25	0	0

- Molecule 2 is URIDINE-5'-DIPHOSPHATE-GLUCURONIC ACID (three-letter code: UGA) (formula: $C_{15}H_{22}N_2O_{18}P_2$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
2	A	1	37	15	2	18	2	0	0
2	A	1	37	15	2	18	2	0	0

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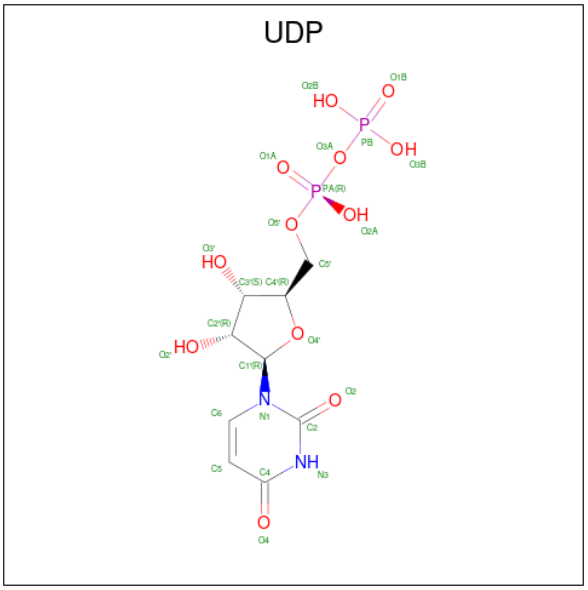
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
2	B	1	37	15	2	18	2	0	0
			Total	C	N	O	P		
2	C	1	37	15	2	18	2	0	0
			Total	C	N	O	P		
2	D	1	37	15	2	18	2	0	0
			Total	C	N	O	P		
2	D	1	37	15	2	18	2	0	0

- Molecule 3 is MANGANESE (II) ION (three-letter code: MN) (formula: Mn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Mn		
3	A	2	2	2	0	0
			Total	Mn		
3	B	2	2	2	0	0
			Total	Mn		
3	C	2	2	2	0	0
			Total	Mn		
3	D	2	2	2	0	0

- Molecule 4 is URIDINE-5'-DIPHOSPHATE (three-letter code: UDP) (formula: $C_9H_{14}N_2O_{12}P_2$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
4	B	1	25	9	2	12	2	0	0

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
4	C	1	25	9	2	12	2	0	0

- Molecule 5 is water.

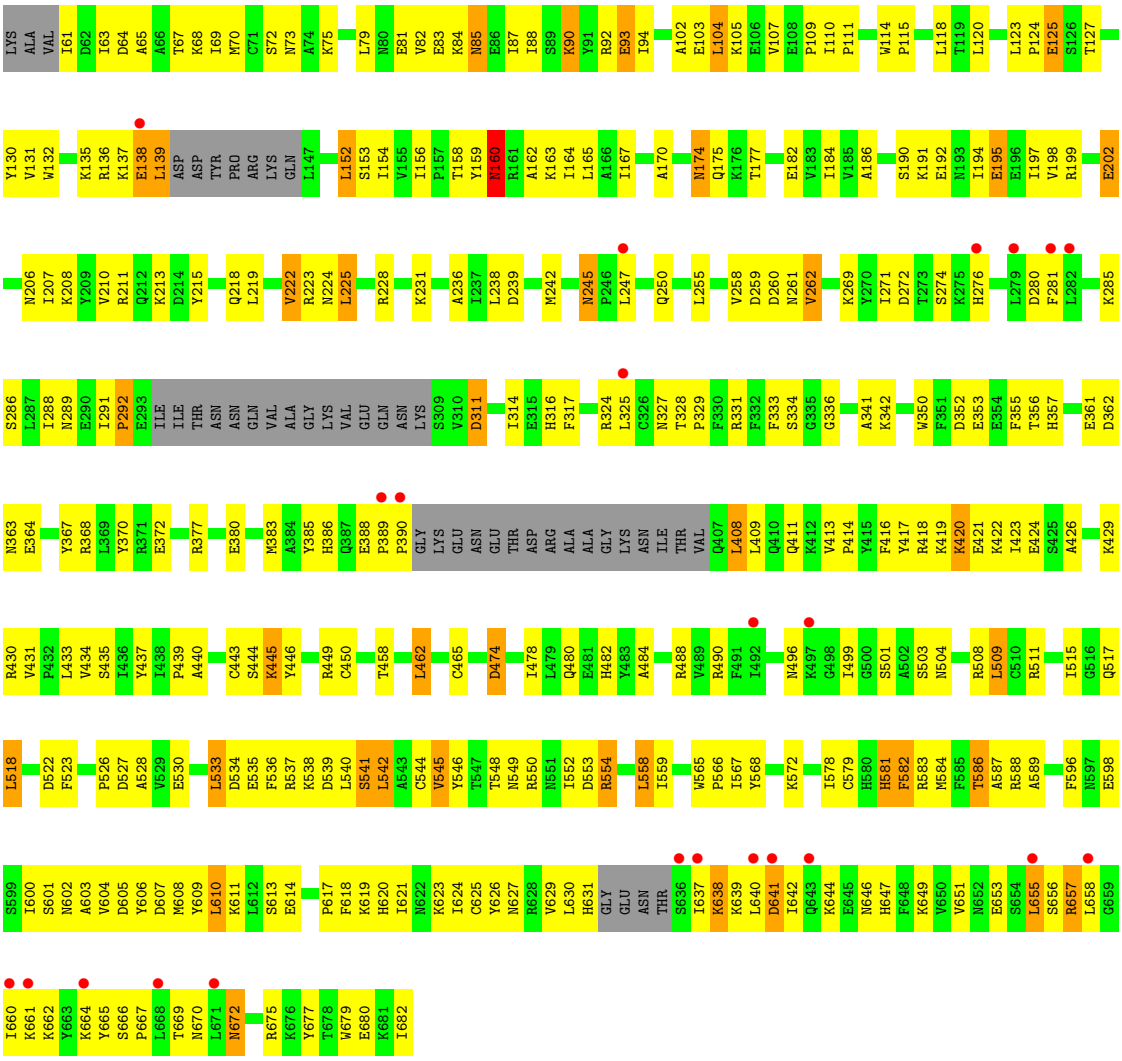
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
5	A	107	107	107	0	0
			Total	O		
5	B	140	140	140	0	0
			Total	O		
5	C	177	177	177	0	0
			Total	O		
5	D	123	123	123	0	0

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.

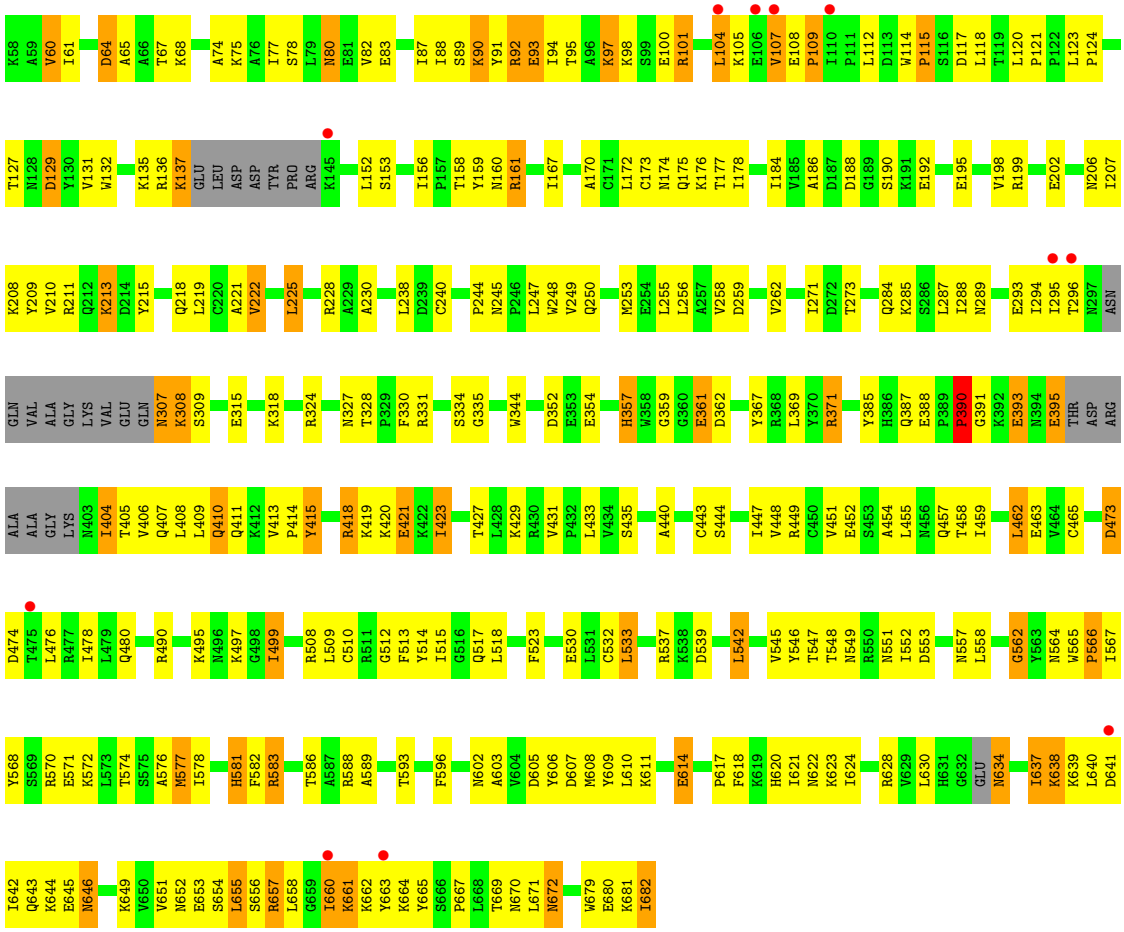
• Molecule 1: Chondroitin synthase

Chain A: 4% 44% 43% 6% 7%



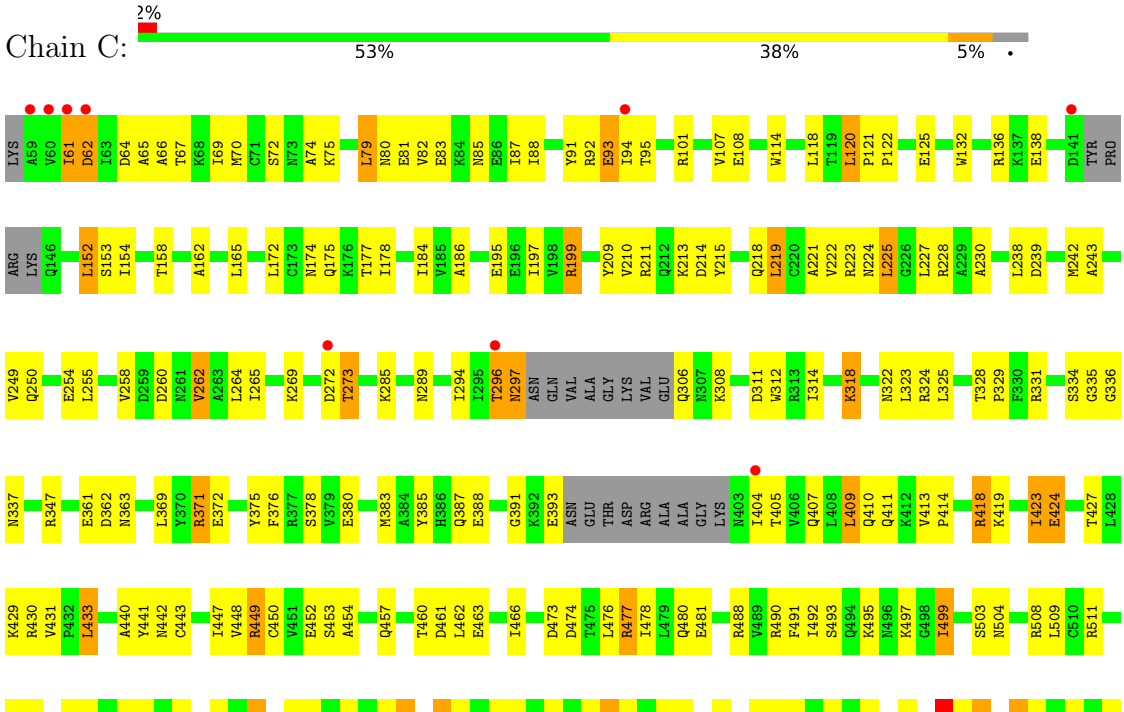
• Molecule 1: Chondroitin synthase

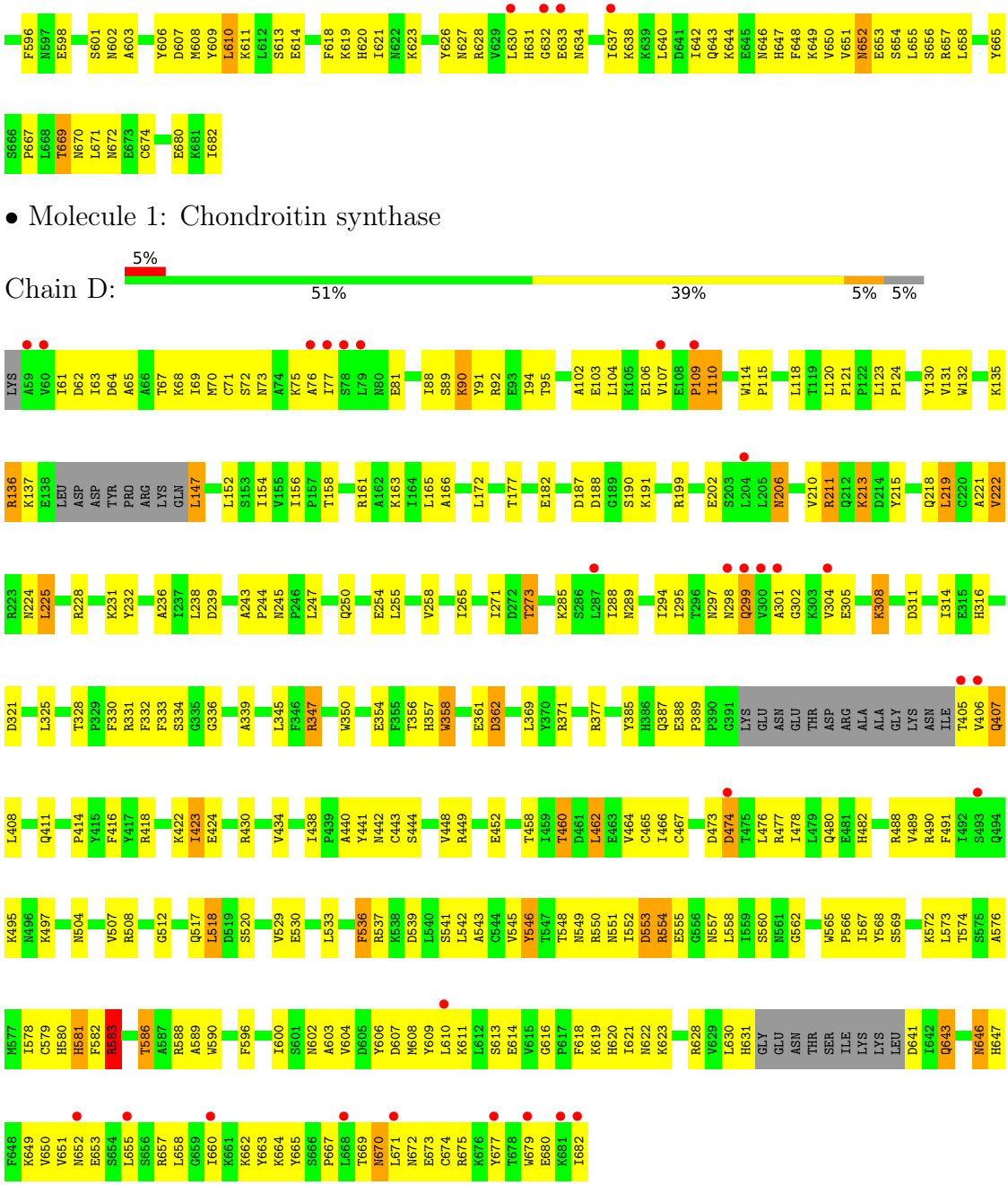
Chain B: 2% 50% 38% 8%



- Molecule 1: Chondroitin synthase

Chain C:





• Molecule 1: Chondroitin synthase

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	84.09Å 219.83Å 85.86Å 90.00° 103.07° 90.00°	Depositor
Resolution (Å)	20.00 – 2.40 42.86 – 2.40	Depositor EDS
% Data completeness (in resolution range)	82.9 (20.00-2.40) 83.0 (42.86-2.40)	Depositor EDS
R_{merge}	0.13	Depositor
R_{sym}	0.13	Depositor
$< I/\sigma(I) >$ [1]	1.16 (at 2.39Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.225 , 0.286 0.222 , 0.281	Depositor DCC
R_{free} test set	5371 reflections (5.03%)	wwPDB-VP
Wilson B-factor (Å^2)	35.5	Xtriage
Anisotropy	0.616	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 53.8	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	0.023 for l,-k,h	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	20192	wwPDB-VP
Average B, all atoms (Å^2)	52.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.55% 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 (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: UGA, MN, UDP

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	0.57	11/4839 (0.2%)	0.67	5/6543 (0.1%)
1	B	0.65	12/4993 (0.2%)	0.66	1/6751 (0.0%)
1	C	0.62	8/5010 (0.2%)	0.69	2/6777 (0.0%)
1	D	0.61	13/4937 (0.3%)	0.65	4/6680 (0.1%)
All	All	0.62	44/19779 (0.2%)	0.67	12/26751 (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	2
1	B	0	1
1	C	0	2
1	D	0	1
All	All	0	6

The worst 5 of 44 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	583	ARG	CZ-NH1	-15.61	1.12	1.33
1	D	583	ARG	CZ-NH1	-14.19	1.14	1.33
1	A	581	HIS	C-O	-13.62	0.97	1.23
1	C	582	PHE	CE2-CZ	-13.18	1.12	1.37
1	B	582	PHE	C-O	-12.59	0.99	1.23

The worst 5 of 12 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	581	HIS	CB-CA-C	-10.40	89.61	110.40
1	B	583	ARG	NE-CZ-NH2	7.60	124.10	120.30
1	C	581	HIS	C-N-CA	6.48	137.91	121.70
1	D	583	ARG	NE-CZ-NH2	6.25	123.42	120.30
1	A	581	HIS	CA-C-N	6.10	130.62	117.20

There are no chirality outliers.

5 of 6 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	581	HIS	Peptide
1	A	609	TYR	Sidechain
1	B	581	HIS	Peptide
1	C	581	HIS	Peptide
1	C	609	TYR	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	4736	0	4687	309	0
1	B	4890	0	4844	305	0
1	C	4906	0	4851	271	0
1	D	4833	0	4778	257	0
2	A	74	0	38	9	0
2	B	37	0	19	1	0
2	C	37	0	19	0	0
2	D	74	0	38	0	0
3	A	2	0	0	0	0
3	B	2	0	0	0	0
3	C	2	0	0	0	0
3	D	2	0	0	0	0
4	B	25	0	11	0	0
4	C	25	0	11	0	0
5	A	107	0	0	26	0
5	B	140	0	0	13	0
5	C	177	0	0	18	0
5	D	123	0	0	11	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	20192	0	19296	1135	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 29.

The worst 5 of 1135 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:B:132:TRP:HA	1:B:135:LYS:HE2	1.20	1.20
1:C:296:THR:HG22	1:C:297:ASN:H	1.15	1.09
1:D:669:THR:HG22	1:D:670:ASN:H	1.20	1.03
1:D:273:THR:HG21	1:D:387:GLN:HE21	1.22	1.02
1:D:586:THR:HG22	1:D:589:ALA:H	1.20	1.01

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	570/625 (91%)	508 (89%)	47 (8%)	15 (3%)	5 5
1	B	591/625 (95%)	527 (89%)	45 (8%)	19 (3%)	4 3
1	C	595/625 (95%)	546 (92%)	44 (7%)	5 (1%)	19 29
1	D	586/625 (94%)	526 (90%)	50 (8%)	10 (2%)	9 11
All	All	2342/2500 (94%)	2107 (90%)	186 (8%)	49 (2%)	7 8

5 of 49 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	138	GLU
1	A	292	PRO

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Mol	Chain	Res	Type
1	A	657	ARG
1	B	638	LYS
1	C	638	LYS

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	521/558 (93%)	478 (92%)	43 (8%)	11	17
1	B	538/558 (96%)	493 (92%)	45 (8%)	11	16
1	C	540/558 (97%)	500 (93%)	40 (7%)	13	22
1	D	531/558 (95%)	492 (93%)	39 (7%)	14	22
All	All	2130/2232 (95%)	1963 (92%)	167 (8%)	12	19

5 of 167 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	509	LEU
1	D	297	ASN
1	C	542	LEU
1	D	90	LYS
1	D	388	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 71 such sidechains are listed below:

Mol	Chain	Res	Type
1	D	250	GLN
1	D	298	ASN
1	D	517	GLN
1	B	407	GLN
1	B	387	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 16 ligands modelled in this entry, 8 are monoatomic - leaving 8 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	UDP	C	1	3	24,26,26	0.97	2 (8%)	37,40,40	1.67	6 (16%)
2	UGA	A	683	3	32,39,39	1.47	1 (3%)	42,60,60	1.16	5 (11%)
2	UGA	D	684	3	32,39,39	1.45	2 (6%)	42,60,60	1.30	7 (16%)
4	UDP	B	1	3	24,26,26	0.83	0	37,40,40	1.52	6 (16%)
2	UGA	B	683	3	32,39,39	1.43	1 (3%)	42,60,60	1.17	3 (7%)
2	UGA	C	683	3	32,39,39	1.47	1 (3%)	42,60,60	1.27	7 (16%)
2	UGA	A	684	3	32,39,39	1.41	1 (3%)	42,60,60	1.26	6 (14%)
2	UGA	D	683	3	32,39,39	1.45	1 (3%)	42,60,60	1.02	3 (7%)

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	UDP	C	1	3	-	3/16/32/32	0/2/2/2
2	UGA	A	683	3	-	5/23/61/61	0/3/3/3
2	UGA	D	684	3	-	7/23/61/61	0/3/3/3
4	UDP	B	1	3	-	1/16/32/32	0/2/2/2
2	UGA	B	683	3	-	6/23/61/61	0/3/3/3
2	UGA	C	683	3	-	6/23/61/61	0/3/3/3
2	UGA	A	684	3	-	6/23/61/61	0/3/3/3
2	UGA	D	683	3	-	5/23/61/61	0/3/3/3

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

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	683	UGA	O'P-C6'	7.03	1.43	1.22
2	D	683	UGA	O'P-C6'	7.02	1.43	1.22
2	A	683	UGA	O'P-C6'	7.01	1.43	1.22
2	D	684	UGA	O'P-C6'	7.00	1.43	1.22
2	C	683	UGA	O'P-C6'	6.89	1.43	1.22

The worst 5 of 43 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	C	1	UDP	C4-N3-C2	-4.85	120.19	126.58
4	B	1	UDP	C4-N3-C2	-4.37	120.82	126.58
4	C	1	UDP	O4-C4-C5	-4.25	117.69	125.16
4	B	1	UDP	N3-C2-N1	3.60	119.67	114.89
4	C	1	UDP	N3-C2-N1	3.48	119.50	114.89

There are no chirality outliers.

5 of 39 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	683	UGA	O4D-C1D-N1-C6
2	A	683	UGA	C2D-C1D-N1-C6
2	A	684	UGA	O4D-C1D-N1-C6
2	A	684	UGA	C2D-C1D-N1-C6
2	B	683	UGA	O4D-C1D-N1-C6

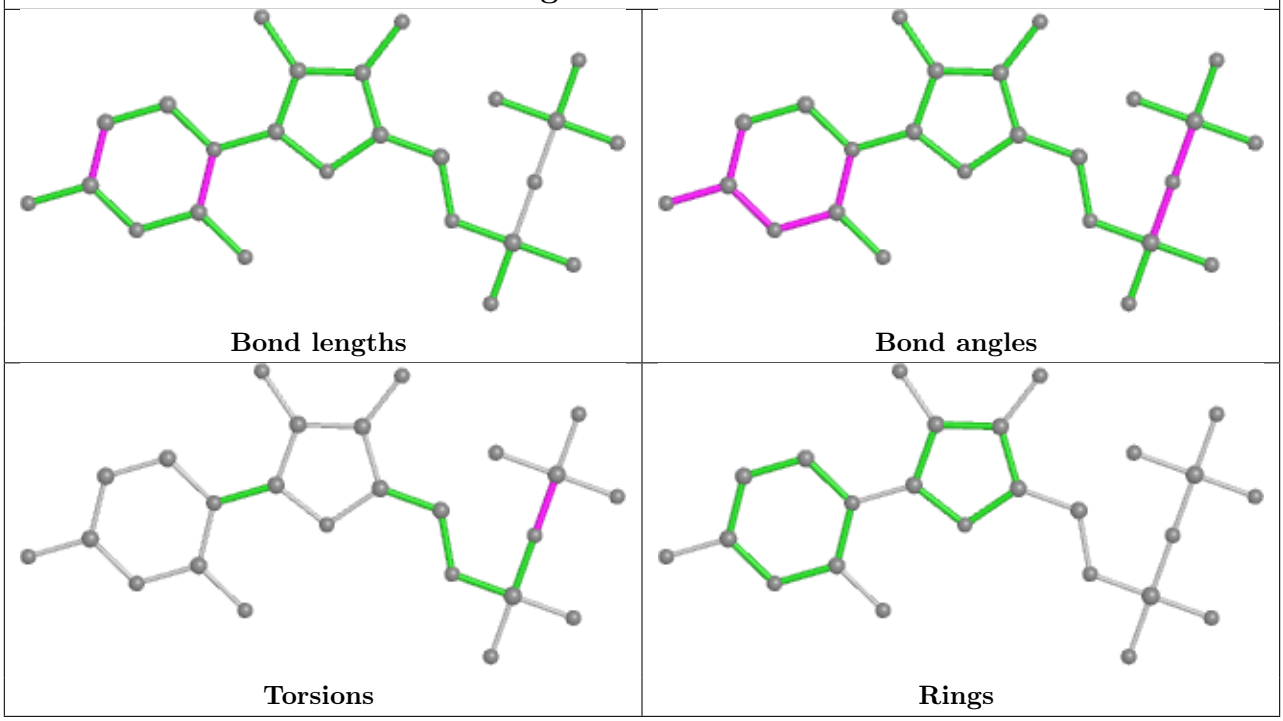
There are no ring outliers.

2 monomers are involved in 10 short contacts:

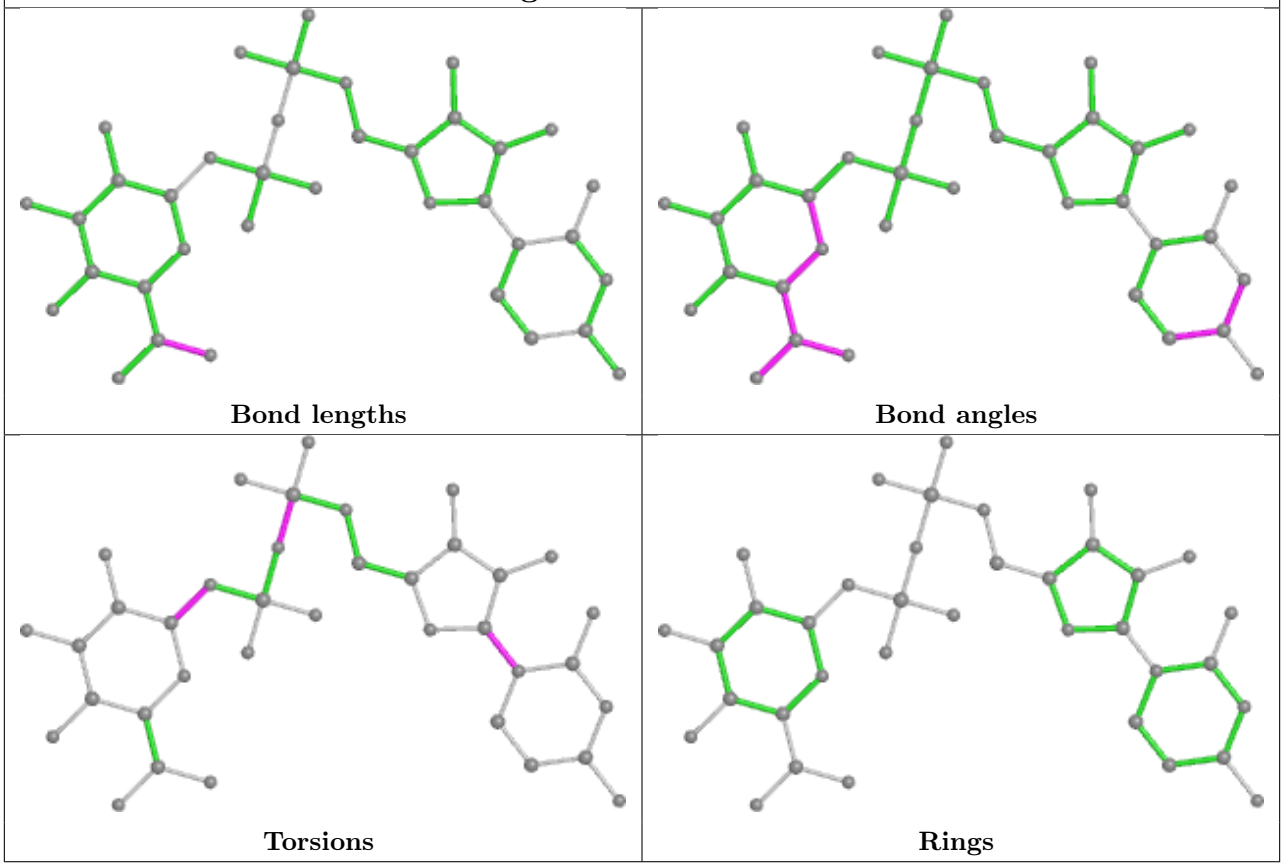
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	683	UGA	1	0
2	A	684	UGA	9	0

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.

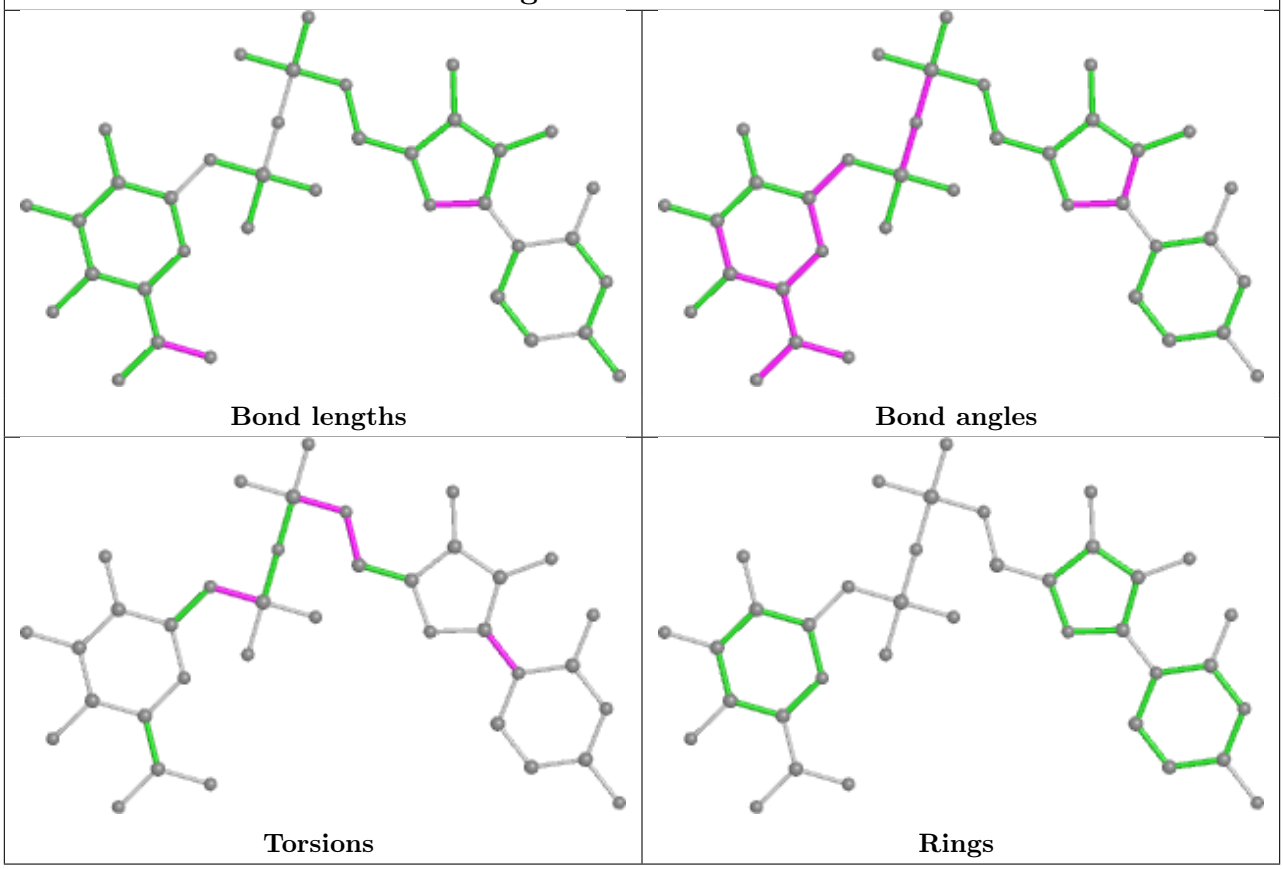
Ligand UDP C 1



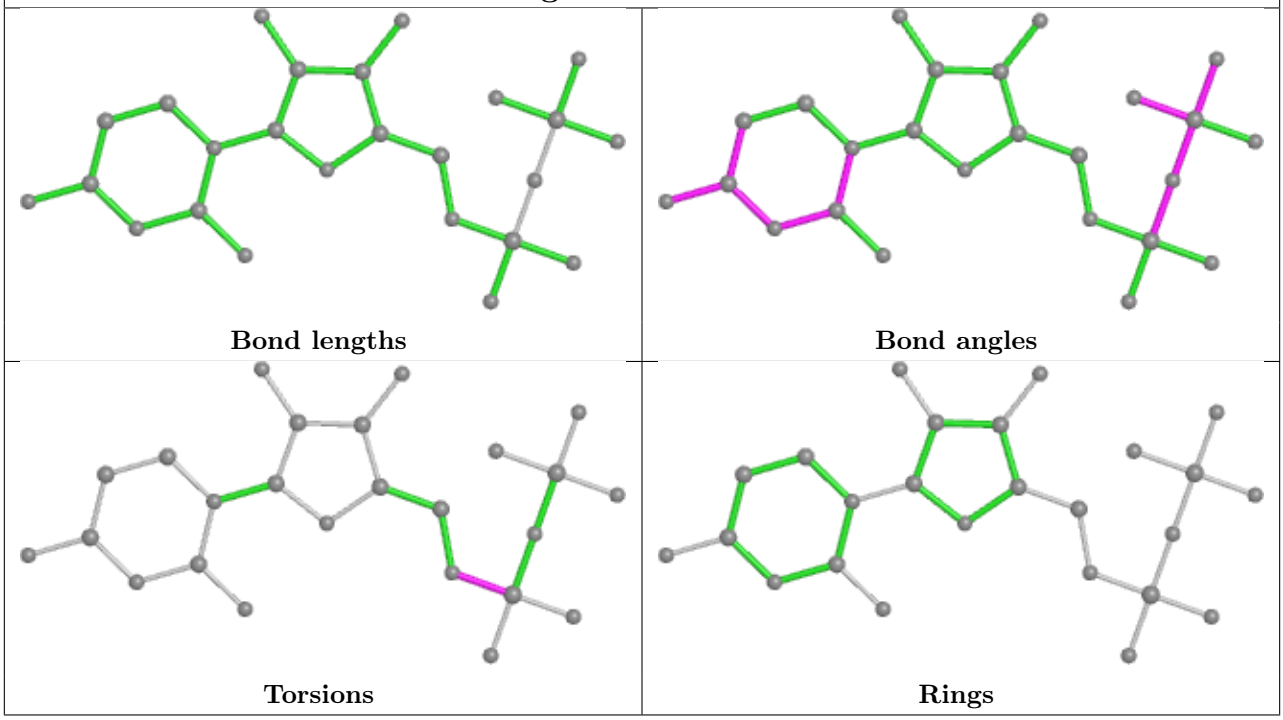
Ligand UGA A 683



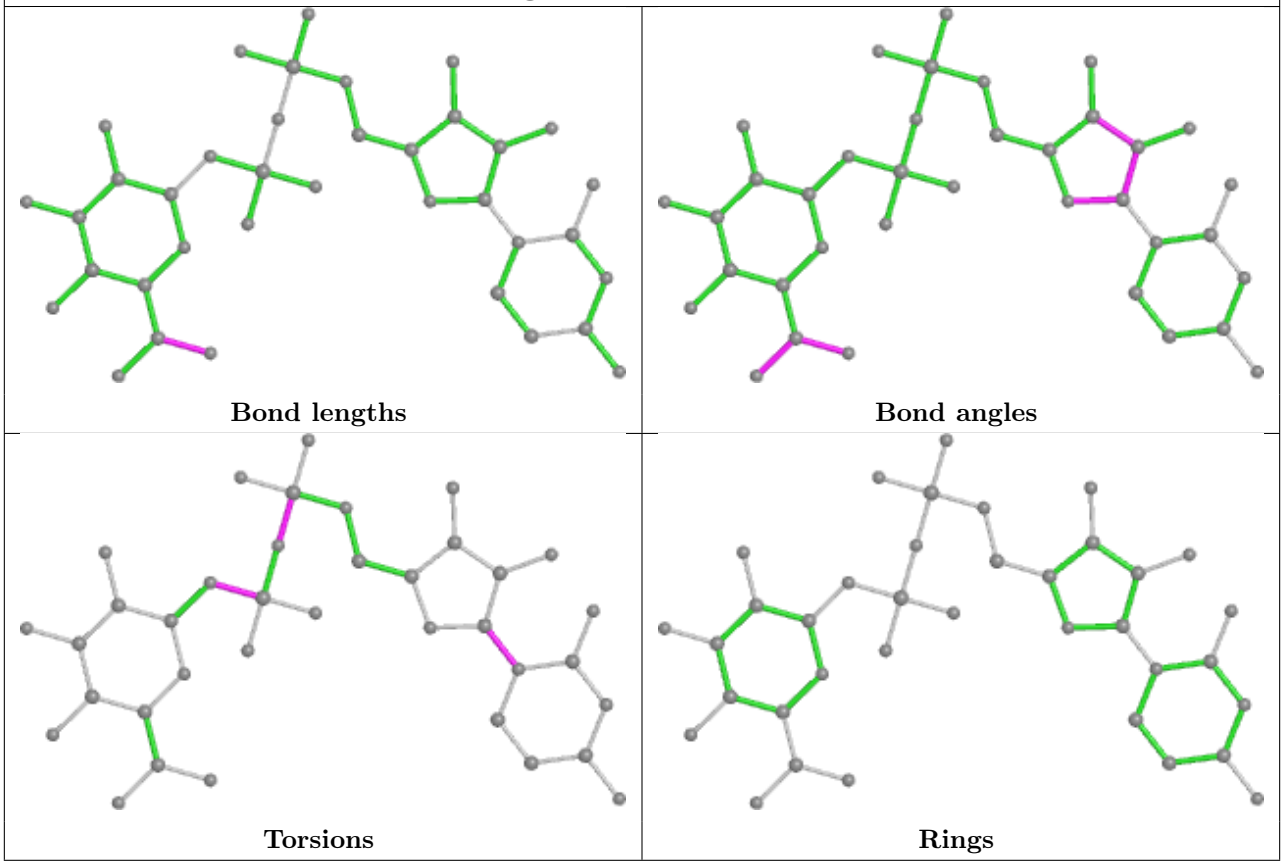
Ligand UGA D 684



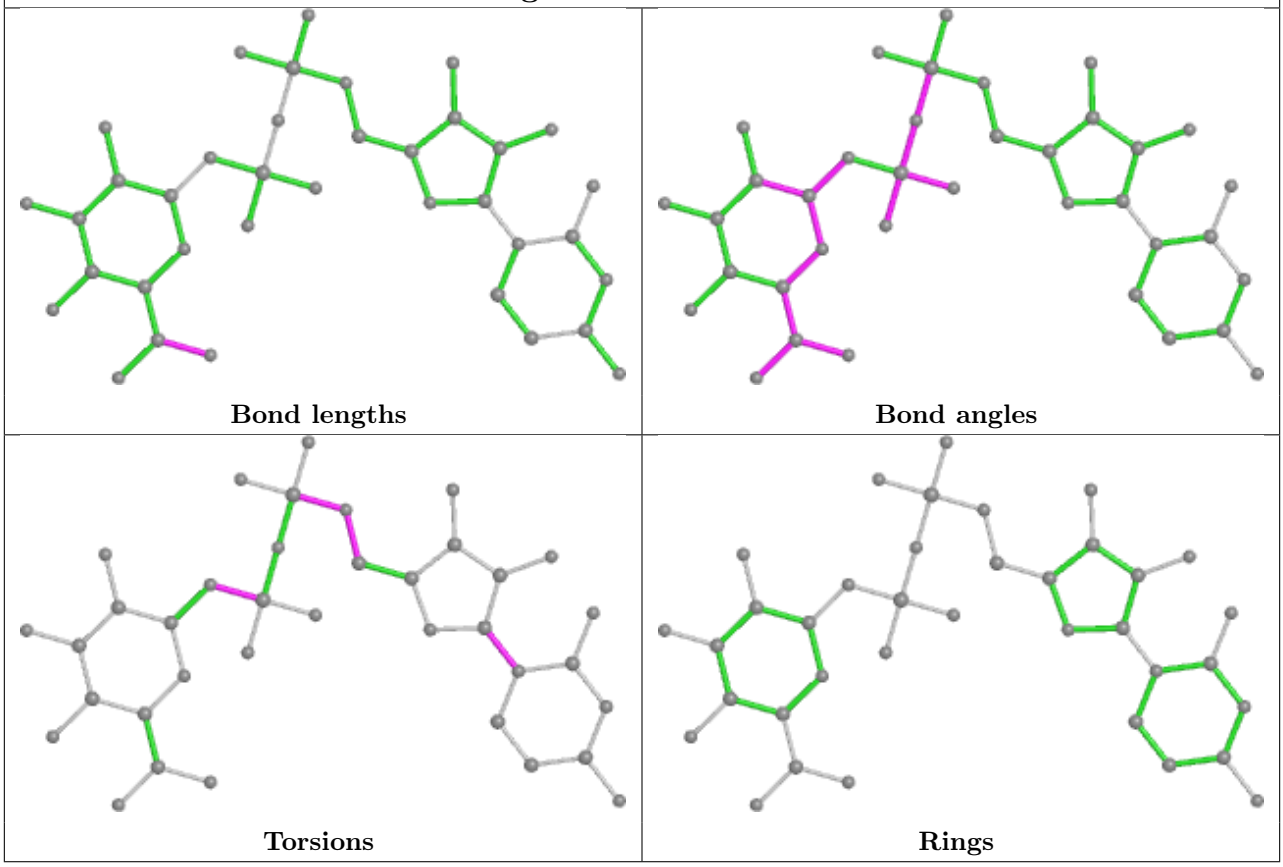
Ligand UDP B 1



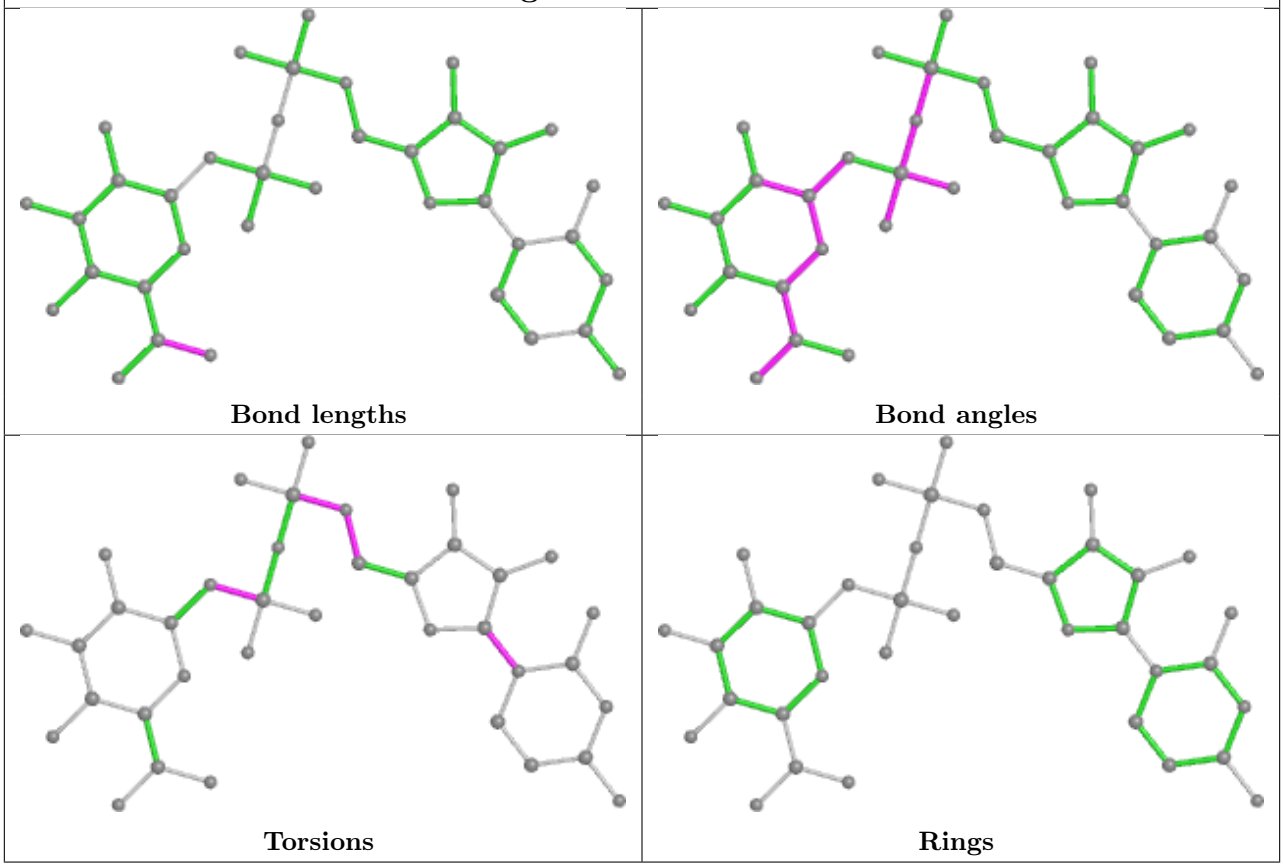
Ligand UGA B 683

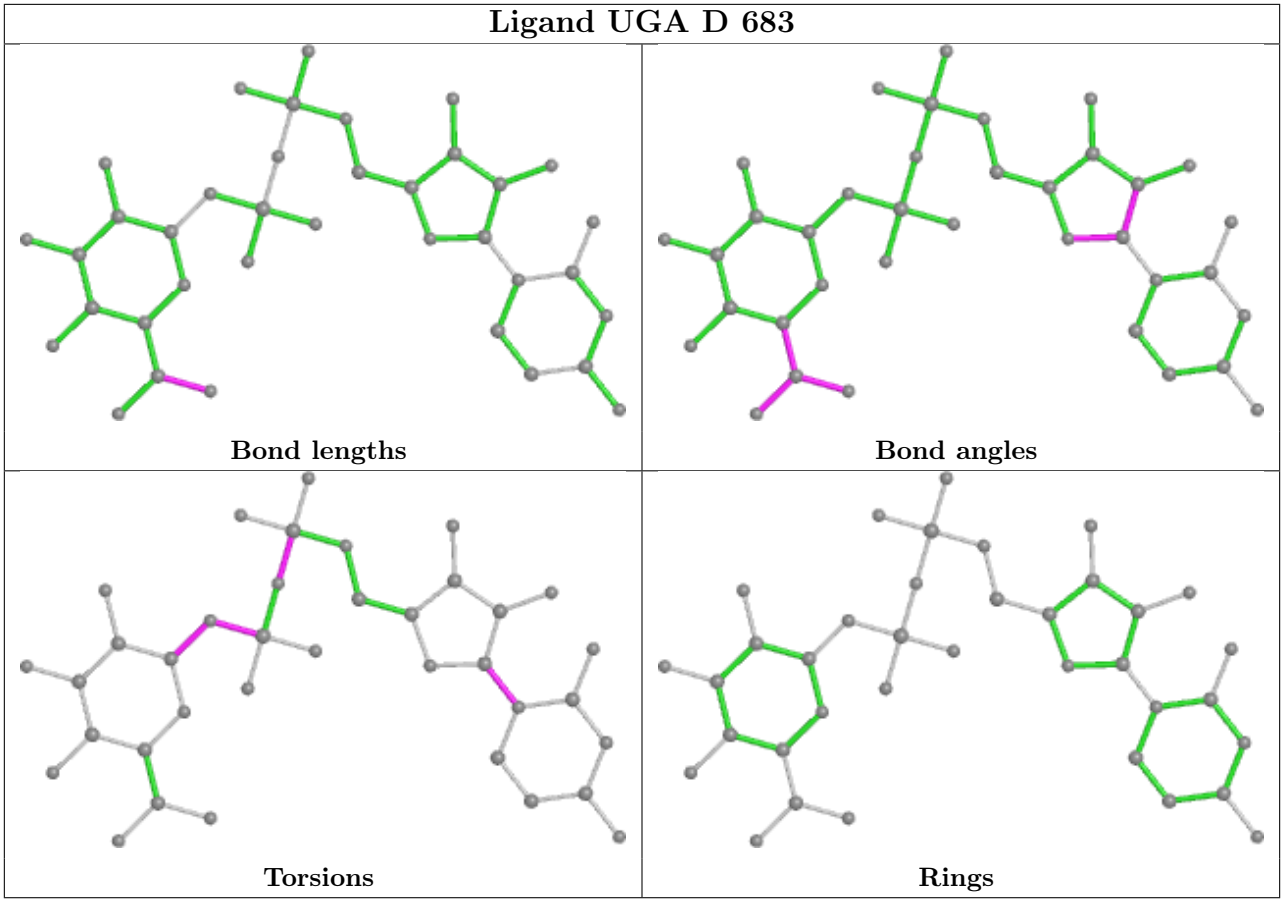


Ligand UGA C 683



Ligand UGA A 684





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	580/625 (92%)	0.24	23 (3%)	38	37	34, 54, 83, 105	20 (3%)
1	B	601/625 (96%)	0.09	11 (1%)	68	66	30, 48, 80, 99	22 (3%)
1	C	603/625 (96%)	-0.01	13 (2%)	62	60	21, 40, 69, 99	22 (3%)
1	D	594/625 (95%)	0.23	29 (4%)	29	28	29, 52, 92, 107	21 (3%)
All	All	2378/2500 (95%)	0.13	76 (3%)	47	46	21, 49, 83, 107	85 (3%)

The worst 5 of 76 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	77	ILE	8.3
1	D	60	VAL	6.7
1	D	300	VAL	6.5
1	C	296	THR	4.5
1	B	107	VAL	4.4

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)

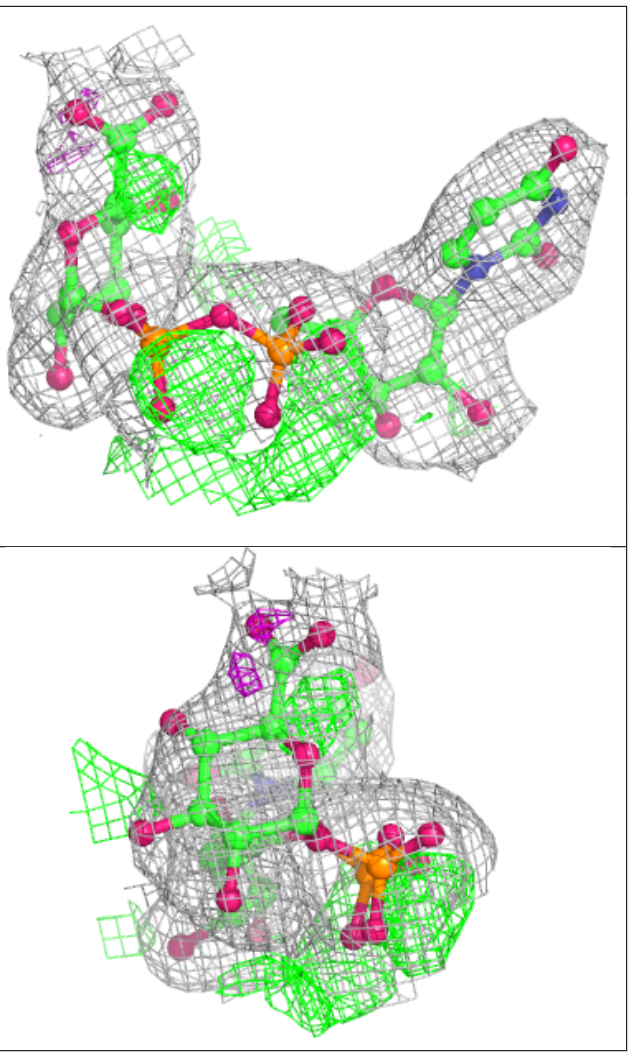
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	UGA	A	684	37/37	0.90	0.17	52,64,71,76	0
2	UGA	A	683	37/37	0.95	0.14	49,56,72,76	0
2	UGA	B	683	37/37	0.95	0.15	46,52,58,61	0
2	UGA	D	683	37/37	0.95	0.15	44,53,66,68	0
2	UGA	C	683	37/37	0.96	0.14	37,43,50,52	0
2	UGA	D	684	37/37	0.96	0.12	47,52,60,60	0
4	UDP	B	1	25/25	0.96	0.15	37,42,58,60	0
3	MN	B	4	1/1	0.97	0.11	62,62,62,62	0
4	UDP	C	1	25/25	0.97	0.14	33,39,49,53	0
3	MN	D	7	1/1	0.98	0.14	46,46,46,46	0
3	MN	B	3	1/1	0.98	0.13	47,47,47,47	0
3	MN	A	2	1/1	0.98	0.15	60,60,60,60	0
3	MN	A	1	1/1	0.99	0.17	58,58,58,58	0
3	MN	D	8	1/1	0.99	0.12	64,64,64,64	0
3	MN	C	5	1/1	0.99	0.15	44,44,44,44	0
3	MN	C	6	1/1	0.99	0.15	49,49,49,49	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.

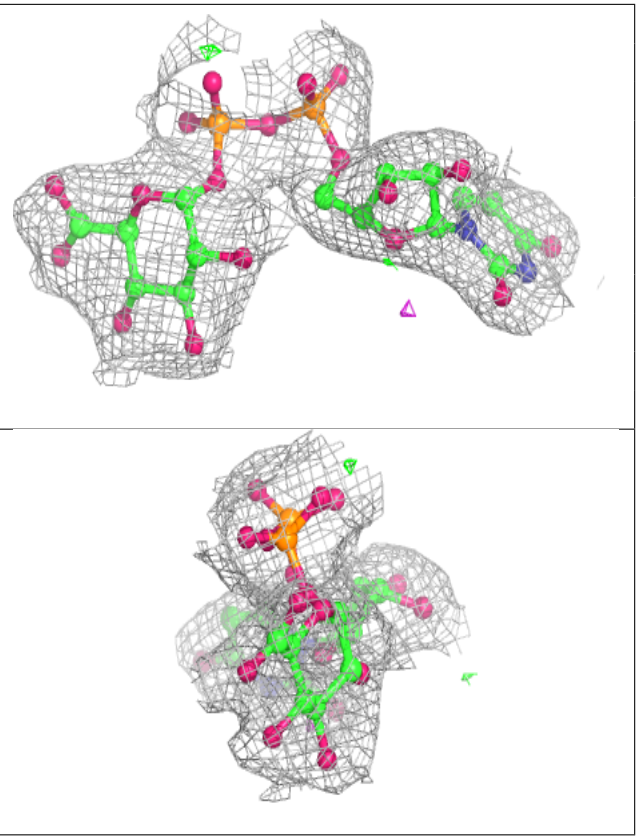
Electron density around UGA A 684:

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



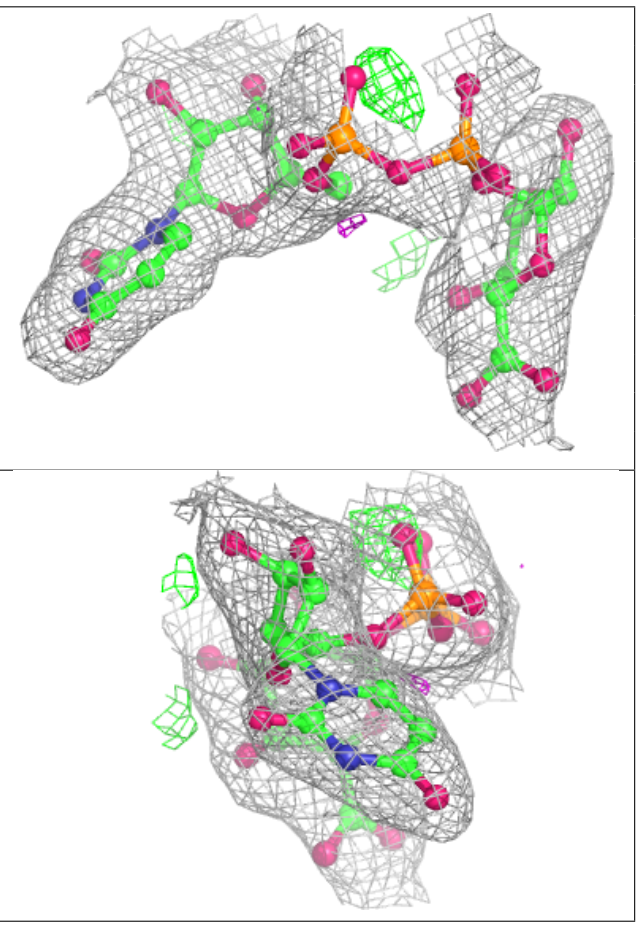
Electron density around UGA A 683:

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



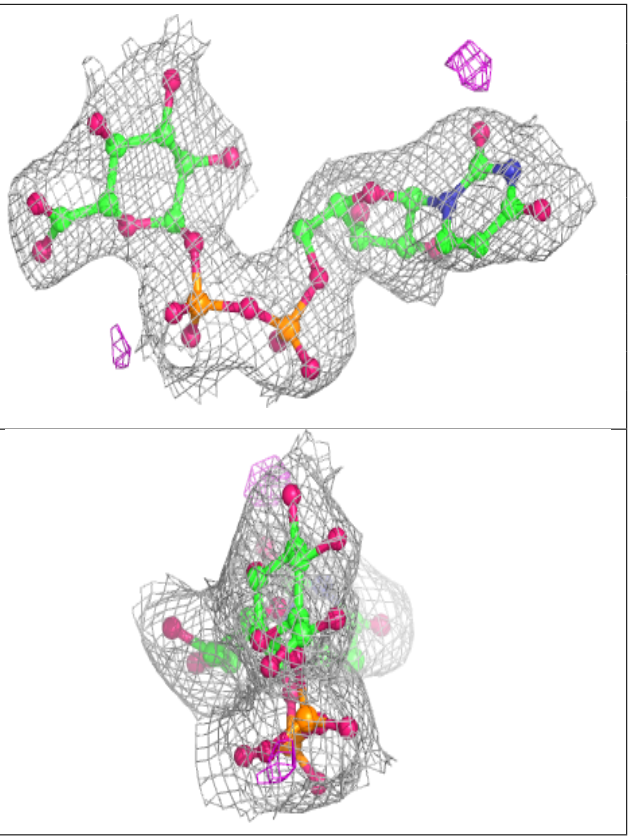
Electron density around UGA B 683:

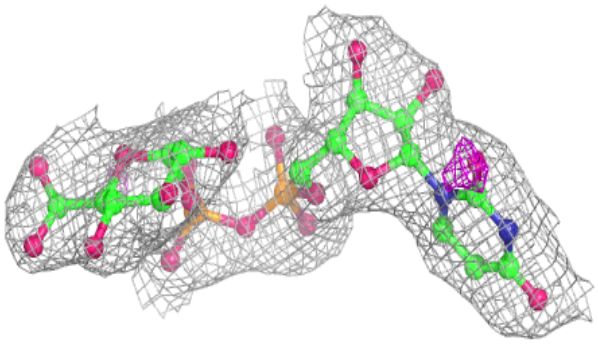
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around UGA D 683:

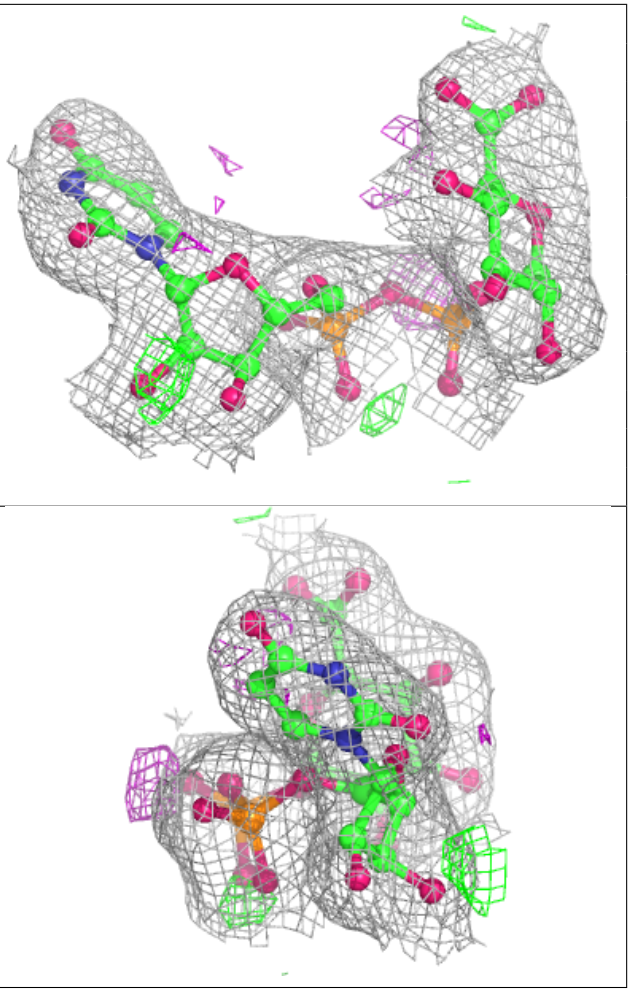
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





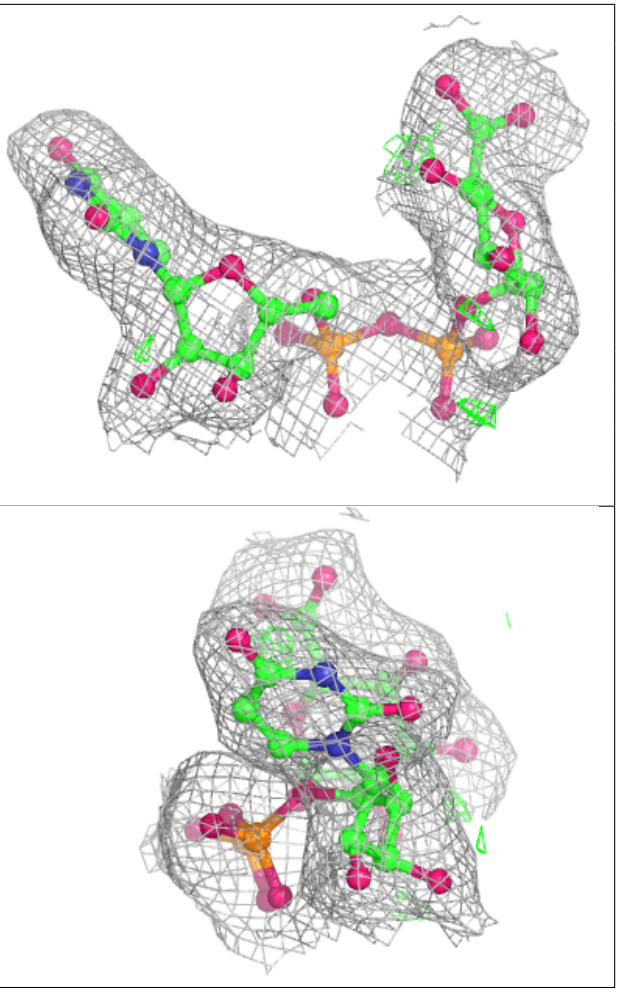
Electron density around UGA C 683:

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



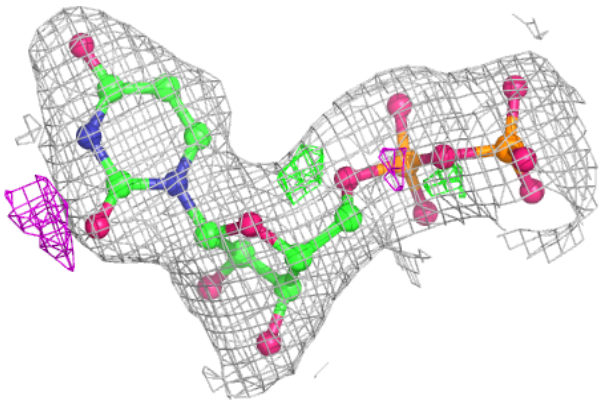
Electron density around UGA D 684:

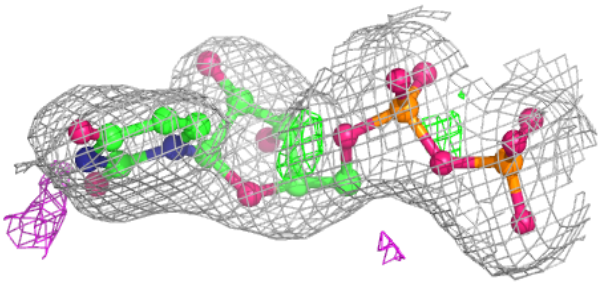
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

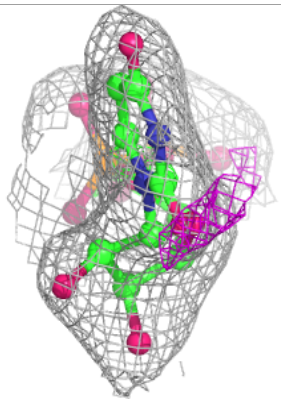


Electron density around UDP B 1:

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

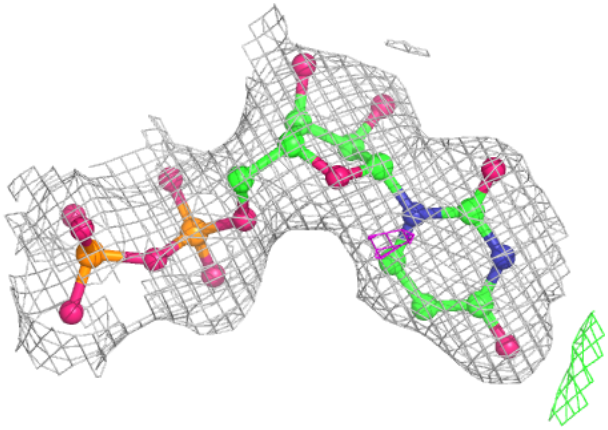


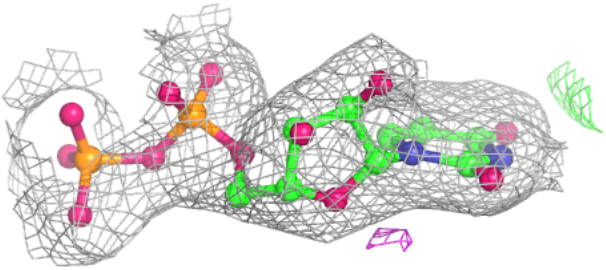


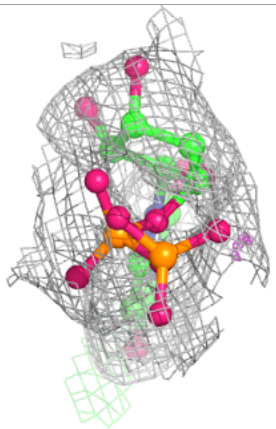


Electron density around UDP C 1:

$2mF_o$-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.