



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 8, 2020 – 02:17 PM BST

PDB ID : 3RJR
Title : Crystal Structure of pro-TGF beta 1
Authors : Zhu, J.H.; Shi, M.L.; Springer, T.A.
Deposited on : 2011-04-15
Resolution : 3.05 Å(reported)

This is a Full wwPDB X-ray Structure Validation 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 following versions of software and data (see [references ⓘ](#)) 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 : 2.13.1
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) : 2.13.1

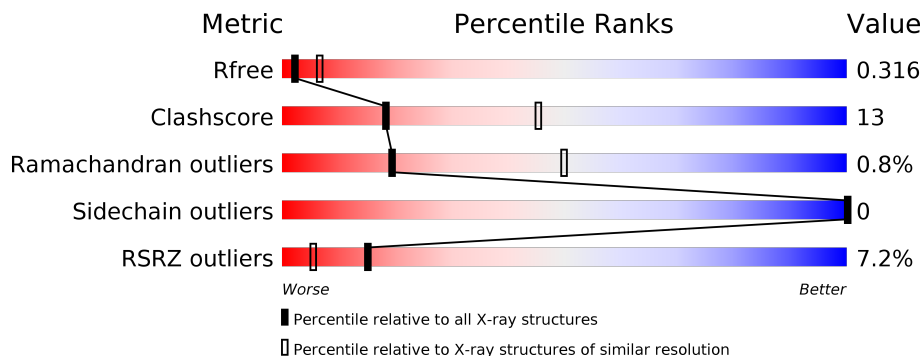
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.05 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	1754 (3.10-3.02)
Clashscore	141614	1864 (3.10-3.02)
Ramachandran outliers	138981	1794 (3.10-3.02)
Sidechain outliers	138945	1793 (3.10-3.02)
RSRZ outliers	127900	1713 (3.10-3.02)

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 on 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	363	 13% 65% 29% 6%
1	B	363	 6% 63% 27% 9%
1	C	363	 3% 65% 29% 6%
1	D	363	 5% 67% 27% 6%
2	E	2	 100%
2	F	2	 100%

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 10955 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 Transforming growth factor beta-1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	340	Total 2720	C 1728	N 477	O 498	S 17	0	0	0
1	B	330	Total 2638	C 1675	N 465	O 481	S 17	0	0	0
1	C	343	Total 2744	C 1743	N 481	O 503	S 17	0	0	0
1	D	342	Total 2741	C 1742	N 480	O 502	S 17	0	0	0

There are 20 discrepancies between the modelled and reference sequences:

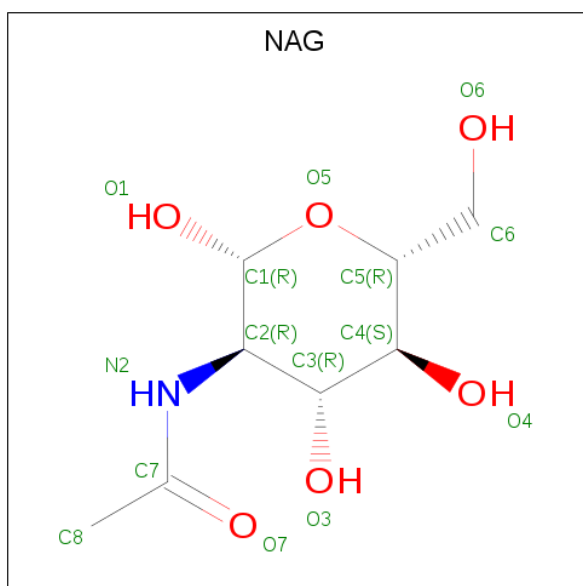
Chain	Residue	Modelled	Actual	Comment	Reference
A	-1	GLY	-	expression tag	UNP P07200
A	0	PRO	-	expression tag	UNP P07200
A	4	SER	CYS	engineered mutation	UNP P07200
A	85	VAL	LEU	SEE REMARK 999	UNP P07200
A	147	GLN	ASN	engineered mutation	UNP P07200
B	-1	GLY	-	expression tag	UNP P07200
B	0	PRO	-	expression tag	UNP P07200
B	4	SER	CYS	engineered mutation	UNP P07200
B	85	VAL	LEU	SEE REMARK 999	UNP P07200
B	147	GLN	ASN	engineered mutation	UNP P07200
C	-1	GLY	-	expression tag	UNP P07200
C	0	PRO	-	expression tag	UNP P07200
C	4	SER	CYS	engineered mutation	UNP P07200
C	85	VAL	LEU	SEE REMARK 999	UNP P07200
C	147	GLN	ASN	engineered mutation	UNP P07200
D	-1	GLY	-	expression tag	UNP P07200
D	0	PRO	-	expression tag	UNP P07200
D	4	SER	CYS	engineered mutation	UNP P07200
D	85	VAL	LEU	SEE REMARK 999	UNP P07200
D	147	GLN	ASN	engineered mutation	UNP P07200

- Molecule 2 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
2	E	2	28	16	2	10	0	0	0
2	F	2	28	16	2	10	0	0	0

- Molecule 3 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: C₈H₁₅NO₆).

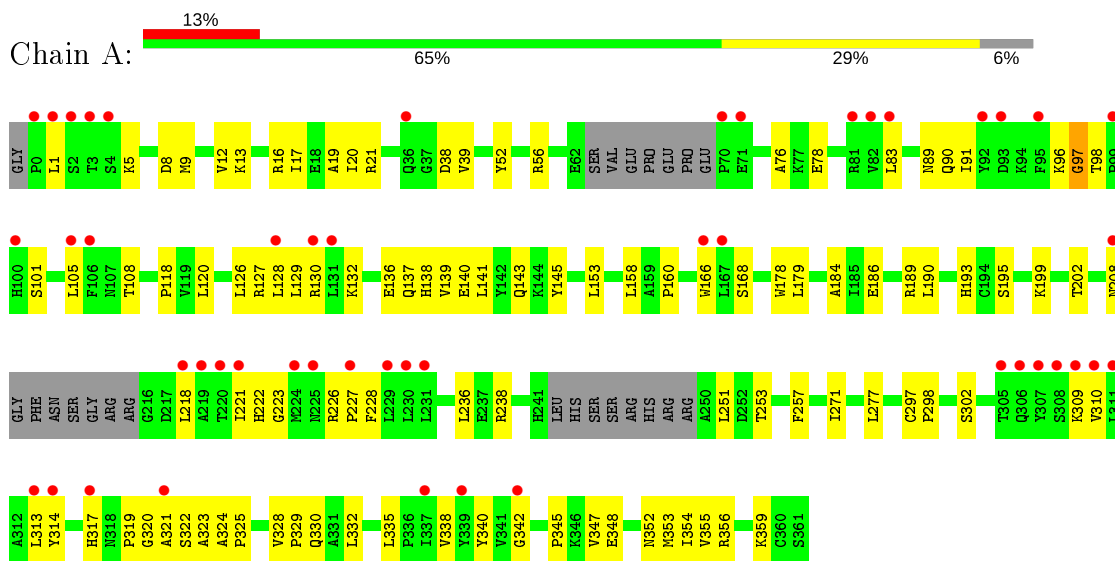


Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
3	A	1	14	8	1	5	0	0
3	C	1	14	8	1	5	0	0
3	D	1	14	8	1	5	0	0
3	D	1	14	8	1	5	0	0

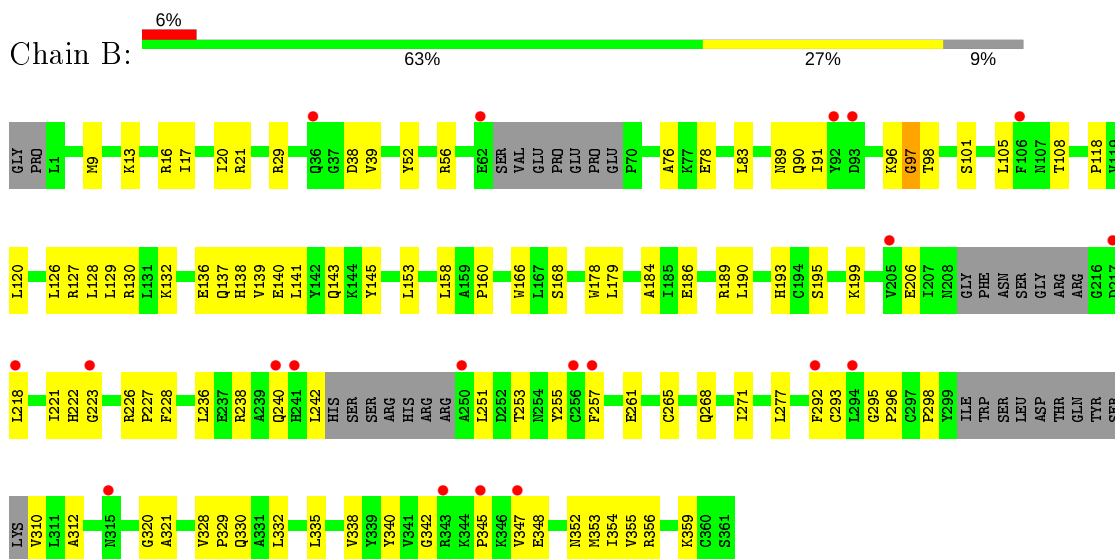
3 Residue-property plots [i](#)

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.

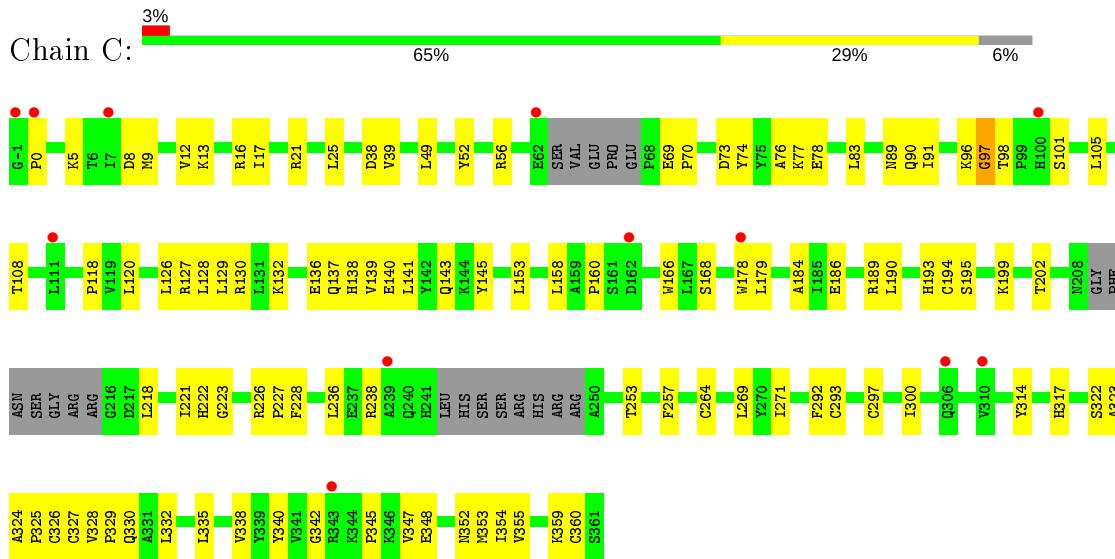
- Molecule 1: Transforming growth factor beta-1



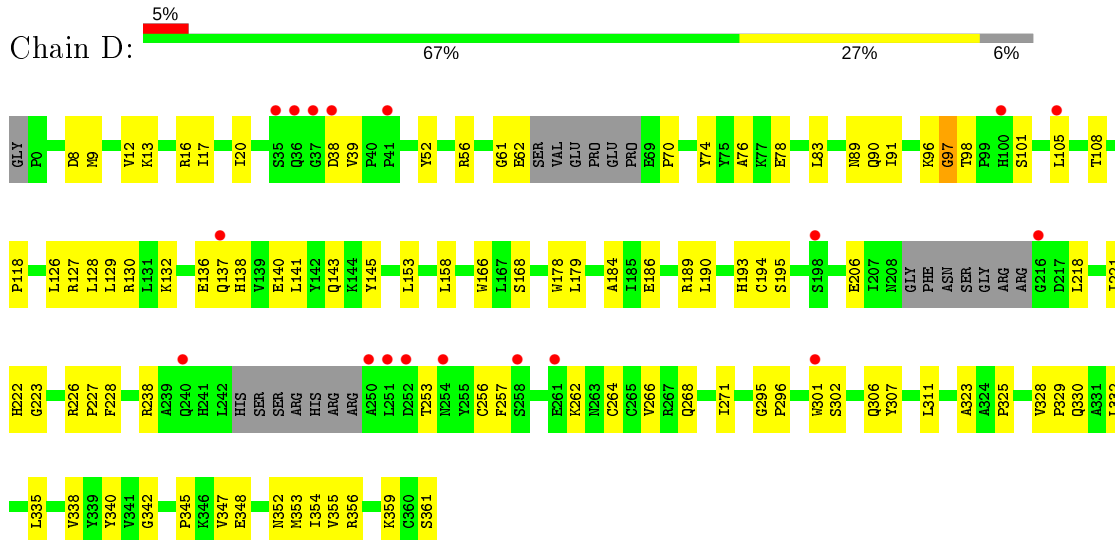
- Molecule 1: Transforming growth factor beta-1



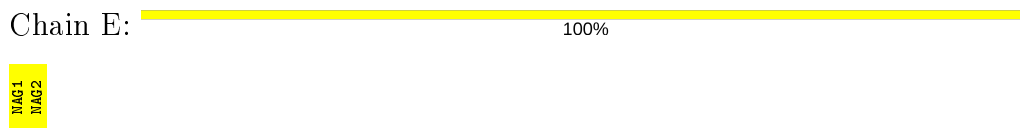
- Molecule 1: Transforming growth factor beta-1



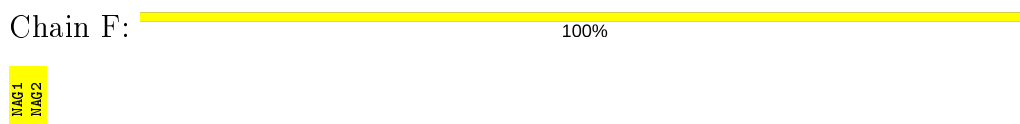
- Molecule 1: Transforming growth factor beta-1



- Molecule 2: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 2: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	54.69Å 126.94Å 137.93Å 90.00° 96.72° 90.00°	Depositor
Resolution (Å)	46.55 – 3.05 46.55 – 3.05	Depositor EDS
% Data completeness (in resolution range)	98.8 (46.55-3.05) 98.9 (46.55-3.05)	Depositor EDS
R_{merge}	0.05	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.10 (at 3.06Å)	Xtrriage
Refinement program	PHENIX dev_276	Depositor
R, R_{free}	0.274 , 0.311 0.291 , 0.316	Depositor DCC
R_{free} test set	1041 reflections (2.95%)	wwPDB-VP
Wilson B-factor (Å ²)	102.5	Xtrriage
Anisotropy	0.000	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.29 , 222.9	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	0.92	EDS
Total number of atoms	10955	wwPDB-VP
Average B, all atoms (Å ²)	214.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 13.00% 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: NAG

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	0.20	0/2784	0.37	0/3773
1	B	0.20	0/2698	0.37	0/3654
1	C	0.20	0/2810	0.37	0/3810
1	D	0.20	0/2806	0.37	0/3804
All	All	0.20	0/11098	0.37	0/15041

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 [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	2720	0	2706	85	0
1	B	2638	0	2635	79	0
1	C	2744	0	2730	79	0
1	D	2741	0	2730	71	0
2	E	28	0	25	1	0
2	F	28	0	25	3	0
3	A	14	0	13	0	0
3	C	14	0	13	0	0
3	D	28	0	26	0	0
All	All	10955	0	10903	290	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 13.

All (290) 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:D:91:ILE:CD1	1:D:105:LEU:HD12	1.52	1.39
1:A:91:ILE:CD1	1:A:105:LEU:HD12	1.51	1.38
1:B:91:ILE:CD1	1:B:105:LEU:HD12	1.52	1.37
1:C:91:ILE:CD1	1:C:105:LEU:HD12	1.56	1.36
1:D:91:ILE:HD12	1:D:105:LEU:CD1	1.79	1.12
1:A:91:ILE:HD12	1:A:105:LEU:CD1	1.79	1.12
1:B:91:ILE:HD12	1:B:105:LEU:CD1	1.80	1.11
1:C:91:ILE:HD12	1:C:105:LEU:CD1	1.82	1.10
1:C:91:ILE:HD12	1:C:105:LEU:HD12	0.95	0.94
1:D:91:ILE:CD1	1:D:105:LEU:CD1	2.40	0.94
1:C:91:ILE:CD1	1:C:105:LEU:CD1	2.44	0.94
1:A:91:ILE:CD1	1:A:105:LEU:CD1	2.40	0.93
1:B:91:ILE:CD1	1:B:105:LEU:CD1	2.41	0.93
1:B:91:ILE:HD12	1:B:105:LEU:HD12	0.92	0.90
1:D:91:ILE:HD12	1:D:105:LEU:HD12	0.91	0.89
1:A:91:ILE:HD12	1:A:105:LEU:HD12	0.91	0.88
1:A:16:ARG:HD2	1:A:321:ALA:H	1.53	0.73
1:A:78:GLU:HA	1:B:348:GLU:HG2	1.75	0.68
1:A:348:GLU:HG2	1:B:78:GLU:HA	1.75	0.68
1:C:78:GLU:HA	1:D:348:GLU:HG2	1.75	0.68
1:C:348:GLU:HG2	1:D:78:GLU:HA	1.75	0.67
1:D:76:ALA:HB3	1:D:238:ARG:HH12	1.60	0.66
2:F:1:NAG:H62	2:F:2:NAG:HN2	1.60	0.66
1:C:76:ALA:HB3	1:C:238:ARG:HH12	1.61	0.66
1:A:76:ALA:HB3	1:A:238:ARG:HH12	1.61	0.66
1:B:76:ALA:HB3	1:B:238:ARG:HH12	1.60	0.66
1:A:91:ILE:HD11	1:A:105:LEU:HD12	1.70	0.65
1:B:338:VAL:HG22	1:B:347:VAL:HG22	1.79	0.65
2:F:1:NAG:H62	2:F:2:NAG:N2	2.12	0.65
1:C:91:ILE:HD11	1:C:105:LEU:HD12	1.73	0.65
1:D:338:VAL:HG22	1:D:347:VAL:HG22	1.79	0.64
1:C:338:VAL:HG22	1:C:347:VAL:HG22	1.80	0.64
1:A:338:VAL:HG22	1:A:347:VAL:HG22	1.79	0.64
1:D:13:LYS:O	1:D:17:ILE:HG13	1.98	0.63
1:C:108:THR:HB	1:C:184:ALA:HA	1.81	0.63
1:A:108:THR:HB	1:A:184:ALA:HA	1.81	0.63
1:A:221:ILE:HG13	1:A:222:HIS:N	2.14	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:206:GLU:HG3	1:C:202:THR:HG22	1.81	0.62
1:B:132:LYS:HD3	1:B:218:LEU:HG	1.82	0.62
1:C:132:LYS:HD3	1:C:218:LEU:HG	1.82	0.62
1:B:221:ILE:HG13	1:B:222:HIS:N	2.14	0.61
1:D:132:LYS:HD3	1:D:218:LEU:HG	1.82	0.61
1:A:132:LYS:HD3	1:A:218:LEU:HG	1.82	0.61
1:D:221:ILE:HG13	1:D:222:HIS:N	2.14	0.61
1:D:108:THR:HB	1:D:184:ALA:HA	1.81	0.61
1:B:108:THR:HB	1:B:184:ALA:HA	1.81	0.61
1:D:16:ARG:O	1:D:20:ILE:HG13	2.02	0.60
1:C:221:ILE:HG13	1:C:222:HIS:N	2.14	0.60
1:D:91:ILE:HD11	1:D:105:LEU:HD12	1.70	0.59
1:B:138:HIS:ND1	1:B:193:HIS:HB2	2.18	0.59
1:B:13:LYS:O	1:B:17:ILE:HG13	2.02	0.58
1:B:261:GLU:HG2	1:B:265:CYS:HB2	1.87	0.57
1:A:321:ALA:HA	1:B:292:PHE:HB2	1.87	0.57
1:A:97:GLY:O	1:B:199:LYS:HG3	2.04	0.57
1:D:262:LYS:O	1:D:296:PRO:HD2	2.04	0.57
1:A:298:PRO:HB2	1:A:302:SER:OG	2.04	0.57
1:A:13:LYS:O	1:A:17:ILE:HG13	2.06	0.56
1:A:222:HIS:CG	1:A:223:GLY:N	2.74	0.56
1:C:222:HIS:CG	1:C:223:GLY:N	2.74	0.56
1:B:222:HIS:CG	1:B:223:GLY:N	2.74	0.56
1:C:226:ARG:HB2	1:C:227:PRO:HD2	1.88	0.55
1:D:222:HIS:CG	1:D:223:GLY:N	2.74	0.55
1:A:226:ARG:HB2	1:A:227:PRO:HD2	1.88	0.55
1:D:329:PRO:HB2	1:D:332:LEU:HD21	1.88	0.55
1:B:9:MET:HG3	1:B:13:LYS:HE3	1.86	0.55
1:A:329:PRO:HB2	1:A:332:LEU:HD21	1.88	0.55
1:B:91:ILE:HD11	1:B:105:LEU:HD12	1.71	0.55
1:B:329:PRO:HB2	1:B:332:LEU:HD21	1.88	0.55
1:D:226:ARG:HB2	1:D:227:PRO:HD2	1.88	0.54
1:A:166:TRP:HZ2	1:A:228:PHE:HE2	1.55	0.54
1:C:166:TRP:HZ2	1:C:228:PHE:HE2	1.55	0.54
1:B:226:ARG:HB2	1:B:227:PRO:HD2	1.88	0.54
1:C:329:PRO:HB2	1:C:332:LEU:HD21	1.88	0.54
1:A:138:HIS:ND1	1:A:193:HIS:HB2	2.22	0.54
1:B:166:TRP:HZ2	1:B:228:PHE:HE2	1.55	0.53
1:C:13:LYS:O	1:C:17:ILE:HG13	2.08	0.53
1:A:321:ALA:HB1	1:B:293:CYS:H	1.74	0.53
1:D:332:LEU:HD13	1:D:352:ASN:HB3	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:127:ARG:HG2	1:A:168:SER:HB3	1.91	0.53
1:C:293:CYS:HB3	1:C:327:CYS:SG	2.49	0.53
1:C:127:ARG:HG2	1:C:168:SER:HB3	1.91	0.53
1:D:166:TRP:HZ2	1:D:228:PHE:HE2	1.55	0.53
1:A:12:VAL:O	1:A:16:ARG:HG2	2.09	0.53
1:C:332:LEU:HD13	1:C:352:ASN:HB3	1.90	0.53
1:A:1:LEU:O	1:A:5:LYS:HG2	2.09	0.52
1:B:332:LEU:HD13	1:B:352:ASN:HB3	1.90	0.52
1:B:335:LEU:HB3	1:B:353:MET:HG3	1.91	0.52
1:D:76:ALA:HB3	1:D:238:ARG:NH1	2.25	0.52
1:A:332:LEU:HD13	1:A:352:ASN:HB3	1.90	0.52
1:A:137:GLN:HG3	1:A:208:ASN:OD1	2.10	0.52
1:A:335:LEU:HB3	1:A:353:MET:HG3	1.91	0.52
2:E:1:NAG:H62	2:E:2:NAG:C7	2.40	0.52
1:A:314:TYR:HA	1:A:317:HIS:HB2	1.91	0.52
1:A:16:ARG:CD	1:A:321:ALA:H	2.20	0.52
1:C:335:LEU:HB3	1:C:353:MET:HG3	1.90	0.52
1:D:335:LEU:HB3	1:D:353:MET:HG3	1.91	0.52
1:A:322:SER:C	1:A:324:ALA:H	2.12	0.51
1:B:140:GLU:O	1:B:190:LEU:HD12	2.10	0.51
1:C:8:ASP:O	1:C:12:VAL:HG23	2.10	0.51
1:A:309:LYS:HG3	1:A:310:VAL:HG23	1.91	0.51
1:B:127:ARG:HG2	1:B:168:SER:HB3	1.91	0.51
1:D:138:HIS:ND1	1:D:193:HIS:HB2	2.26	0.51
1:C:76:ALA:HB3	1:C:238:ARG:NH1	2.25	0.51
1:D:140:GLU:O	1:D:190:LEU:HD12	2.10	0.51
1:D:127:ARG:HG2	1:D:168:SER:HB3	1.91	0.51
1:D:323:ALA:O	1:D:325:PRO:HD3	2.10	0.51
1:A:16:ARG:O	1:A:20:ILE:HG13	2.10	0.51
1:C:140:GLU:O	1:C:190:LEU:HD12	2.10	0.50
1:A:140:GLU:O	1:A:190:LEU:HD12	2.11	0.50
1:B:16:ARG:O	1:B:20:ILE:HG13	2.11	0.50
1:A:76:ALA:HB3	1:A:238:ARG:NH1	2.25	0.50
1:D:256:CYS:SG	1:D:266:VAL:HG12	2.51	0.50
1:B:130:ARG:CZ	1:B:158:LEU:HB3	2.42	0.50
1:B:76:ALA:HB3	1:B:238:ARG:NH1	2.25	0.50
1:A:253:THR:HG23	1:A:356:ARG:HD3	1.94	0.49
1:A:130:ARG:CZ	1:A:158:LEU:HB3	2.42	0.49
1:C:130:ARG:CZ	1:C:158:LEU:HB3	2.42	0.49
1:D:325:PRO:HA	1:D:361:SER:O	2.12	0.49
1:A:277:LEU:HD22	1:B:21:ARG:HG2	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:221:ILE:HG13	1:A:222:HIS:H	1.78	0.48
1:D:89:ASN:OD1	1:D:90:GLN:HG2	2.13	0.48
1:C:89:ASN:OD1	1:C:90:GLN:HG2	2.14	0.48
1:D:130:ARG:CZ	1:D:158:LEU:HB3	2.42	0.48
1:B:253:THR:HG23	1:B:356:ARG:HD3	1.94	0.48
1:B:89:ASN:OD1	1:B:90:GLN:HG2	2.13	0.48
1:D:301:TRP:O	1:D:302:SER:HB3	2.13	0.48
1:A:89:ASN:OD1	1:A:90:GLN:HG2	2.14	0.48
1:C:297:CYS:O	1:C:325:PRO:HG2	2.12	0.48
1:B:251:LEU:HD13	1:B:255:TYR:CE1	2.49	0.48
1:C:221:ILE:HG13	1:C:222:HIS:H	1.78	0.48
1:A:253:THR:O	1:A:257:PHE:HB2	2.14	0.47
1:A:128:LEU:HD23	1:A:129:LEU:N	2.29	0.47
1:D:221:ILE:HG13	1:D:222:HIS:H	1.78	0.47
1:A:321:ALA:HB2	1:B:292:PHE:HA	1.96	0.47
1:C:16:ARG:NH1	1:C:323:ALA:HB2	2.28	0.47
1:C:73:ASP:HB3	1:C:77:LYS:CE	2.44	0.47
1:D:61:GLY:O	1:D:62:GLU:HG3	2.15	0.47
1:B:236:LEU:O	1:B:240:GLN:HG3	2.15	0.47
1:C:16:ARG:CZ	1:C:323:ALA:HB2	2.44	0.47
1:C:322:SER:C	1:C:324:ALA:H	2.18	0.47
1:B:221:ILE:HG13	1:B:222:HIS:H	1.78	0.47
1:C:326:CYS:O	1:C:360:CYS:HA	2.15	0.47
1:A:21:ARG:HG2	1:B:277:LEU:HD22	1.96	0.47
1:B:128:LEU:HD23	1:B:129:LEU:N	2.29	0.47
1:D:128:LEU:HD23	1:D:129:LEU:N	2.29	0.46
1:A:199:LYS:HG3	1:B:97:GLY:O	2.16	0.46
1:C:128:LEU:HD23	1:C:129:LEU:N	2.30	0.46
1:A:193:HIS:NE2	1:A:195:SER:HB2	2.31	0.46
1:C:193:HIS:NE2	1:C:195:SER:HB2	2.31	0.46
1:B:310:VAL:HG23	1:B:312:ALA:H	1.80	0.46
1:A:251:LEU:HD12	1:A:313:LEU:HD21	1.97	0.46
1:B:193:HIS:NE2	1:B:195:SER:HB2	2.31	0.45
1:A:342:GLY:HA2	1:B:38:ASP:HB2	1.98	0.45
1:D:354:ILE:HD12	1:D:354:ILE:N	2.32	0.45
1:C:342:GLY:HA2	1:D:38:ASP:HB2	1.98	0.45
1:A:127:ARG:HG2	1:A:168:SER:CB	2.47	0.45
1:A:354:ILE:HD12	1:A:354:ILE:N	2.32	0.45
1:A:129:LEU:O	1:A:129:LEU:HD23	2.17	0.45
1:C:127:ARG:HG2	1:C:168:SER:CB	2.47	0.45
1:A:314:TYR:HD1	1:A:317:HIS:CG	2.34	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:8:ASP:O	1:A:12:VAL:HG23	2.17	0.45
1:D:193:HIS:NE2	1:D:195:SER:HB2	2.31	0.45
1:B:127:ARG:HG2	1:B:168:SER:CB	2.47	0.45
1:C:354:ILE:N	1:C:354:ILE:HD12	2.32	0.45
1:D:129:LEU:HD23	1:D:129:LEU:O	2.17	0.45
1:A:320:GLY:O	1:A:321:ALA:HB3	2.16	0.45
1:C:98:THR:OG1	1:C:101:SER:HB2	2.18	0.44
1:C:194:CYS:SG	1:D:194:CYS:SG	3.15	0.44
1:B:354:ILE:N	1:B:354:ILE:HD12	2.31	0.44
1:C:129:LEU:O	1:C:129:LEU:HD23	2.17	0.44
1:C:199:LYS:HG3	1:D:97:GLY:O	2.17	0.44
1:C:332:LEU:HD23	1:C:355:VAL:HA	1.98	0.44
1:B:129:LEU:O	1:B:129:LEU:HD23	2.17	0.44
1:B:143:GLN:HB2	1:B:153:LEU:HD11	1.99	0.44
1:A:38:ASP:HB2	1:B:342:GLY:HA2	1.98	0.44
1:C:83:LEU:HD23	1:C:228:PHE:HB3	1.99	0.44
1:D:98:THR:OG1	1:D:101:SER:HB2	2.18	0.44
1:C:38:ASP:HB2	1:D:342:GLY:HA2	1.98	0.44
1:A:136:GLU:HG2	1:A:137:GLN:N	2.33	0.44
1:A:83:LEU:HD23	1:A:228:PHE:HB3	2.00	0.44
1:A:96:LYS:H	1:B:199:LYS:NZ	2.15	0.44
1:C:136:GLU:HG2	1:C:137:GLN:N	2.33	0.44
1:C:269:LEU:HD13	1:D:13:LYS:HD3	1.98	0.44
1:D:143:GLN:HB2	1:D:153:LEU:HD11	1.99	0.44
1:A:332:LEU:HD23	1:A:355:VAL:HA	1.99	0.44
1:D:127:ARG:HG2	1:D:168:SER:CB	2.47	0.44
1:A:297:CYS:HB2	1:A:325:PRO:O	2.18	0.44
1:D:340:TYR:CZ	1:D:345:PRO:HB3	2.53	0.44
1:B:340:TYR:CZ	1:B:345:PRO:HB3	2.53	0.43
1:C:138:HIS:HB3	1:C:193:HIS:HB2	1.98	0.43
1:C:340:TYR:CZ	1:C:345:PRO:HB3	2.53	0.43
1:B:136:GLU:HG2	1:B:137:GLN:N	2.33	0.43
1:C:129:LEU:HD12	1:C:166:TRP:CZ3	2.53	0.43
1:A:19:ALA:HB1	1:A:319:PRO:HB2	2.00	0.43
1:C:253:THR:O	1:C:257:PHE:HB2	2.18	0.43
1:C:49:LEU:HB2	2:F:1:NAG:H82	2.01	0.43
1:A:340:TYR:CZ	1:A:345:PRO:HB3	2.53	0.43
1:B:98:THR:OG1	1:B:101:SER:HB2	2.18	0.43
1:C:143:GLN:HB2	1:C:153:LEU:HD11	1.99	0.43
1:C:21:ARG:O	1:C:25:LEU:HG	2.17	0.43
1:D:257:PHE:CZ	1:D:268:GLN:HB3	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:9:MET:O	1:D:13:LYS:HG3	2.17	0.43
1:B:332:LEU:HD23	1:B:355:VAL:HA	1.99	0.43
1:D:332:LEU:HD23	1:D:355:VAL:HA	1.99	0.43
1:A:98:THR:OG1	1:A:101:SER:HB2	2.18	0.43
1:B:83:LEU:HD23	1:B:228:PHE:HB3	2.00	0.43
1:D:136:GLU:HG2	1:D:137:GLN:N	2.33	0.43
1:A:9:MET:O	1:A:13:LYS:HG3	2.19	0.43
1:B:118:PRO:HB3	1:B:179:LEU:HB2	2.01	0.43
1:B:328:VAL:HB	1:B:329:PRO:HD2	2.00	0.43
1:A:143:GLN:HB2	1:A:153:LEU:HD11	1.99	0.43
1:A:328:VAL:HB	1:A:329:PRO:HD2	2.01	0.43
1:C:9:MET:O	1:C:13:LYS:HG3	2.19	0.43
1:D:141:LEU:HD12	1:D:189:ARG:O	2.18	0.43
1:D:306:GLN:HG2	1:D:307:TYR:N	2.34	0.43
1:C:328:VAL:HB	1:C:329:PRO:HD2	2.01	0.42
1:D:328:VAL:HB	1:D:329:PRO:HD2	2.00	0.42
1:A:141:LEU:HD12	1:A:189:ARG:O	2.18	0.42
1:A:202:THR:HG22	1:D:206:GLU:HG3	2.01	0.42
1:B:141:LEU:HD12	1:B:189:ARG:O	2.18	0.42
1:C:96:LYS:O	1:C:97:GLY:C	2.58	0.42
1:C:292:PHE:HB3	1:D:16:ARG:HE	1.85	0.42
1:A:129:LEU:HD12	1:A:166:TRP:CZ3	2.53	0.42
1:A:118:PRO:HB3	1:A:179:LEU:HB2	2.00	0.42
1:A:96:LYS:O	1:A:97:GLY:C	2.58	0.42
1:C:314:TYR:HD1	1:C:317:HIS:CG	2.37	0.42
1:A:271:ILE:O	1:A:271:ILE:HG23	2.20	0.42
1:A:321:ALA:C	1:A:323:ALA:H	2.22	0.42
1:B:129:LEU:HD12	1:B:166:TRP:CZ3	2.53	0.42
1:C:141:LEU:HD12	1:C:189:ARG:O	2.18	0.42
1:C:69:GLU:CD	1:C:70:PRO:HD2	2.40	0.42
1:D:83:LEU:HD23	1:D:228:PHE:HB3	2.00	0.42
1:A:96:LYS:HB2	1:B:199:LYS:HE3	2.01	0.42
1:C:126:LEU:O	1:C:168:SER:HA	2.19	0.42
1:D:253:THR:HG23	1:D:356:ARG:HD3	2.01	0.42
1:B:129:LEU:HD12	1:B:166:TRP:HZ3	1.85	0.42
1:D:118:PRO:HB3	1:D:179:LEU:HB2	2.01	0.42
1:D:96:LYS:O	1:D:97:GLY:C	2.58	0.42
1:A:52:TYR:CE2	1:A:56:ARG:NE	2.88	0.42
1:B:126:LEU:O	1:B:168:SER:HA	2.19	0.42
1:C:52:TYR:CE2	1:C:56:ARG:NE	2.88	0.42
1:A:126:LEU:O	1:A:168:SER:HA	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:52:TYR:CE2	1:B:56:ARG:NE	2.88	0.42
1:B:96:LYS:O	1:B:97:GLY:C	2.58	0.42
1:D:178:TRP:CG	1:D:186:GLU:HG3	2.55	0.42
1:A:129:LEU:HD12	1:A:166:TRP:HZ3	1.85	0.42
1:C:118:PRO:HB3	1:C:179:LEU:HB2	2.01	0.42
1:D:271:ILE:O	1:D:271:ILE:HG23	2.20	0.42
1:A:340:TYR:HB3	1:B:39:VAL:HG22	2.02	0.41
1:B:29:ARG:HH22	1:B:242:LEU:HD13	1.85	0.41
1:C:12:VAL:O	1:C:16:ARG:HG2	2.19	0.41
1:D:126:LEU:O	1:D:168:SER:HA	2.19	0.41
1:A:39:VAL:HG22	1:B:340:TYR:HB3	2.02	0.41
1:C:129:LEU:HD12	1:C:166:TRP:HZ3	1.85	0.41
1:C:271:ILE:HG23	1:C:271:ILE:O	2.19	0.41
1:B:178:TRP:CG	1:B:186:GLU:HG3	2.55	0.41
1:C:178:TRP:CG	1:C:186:GLU:HG3	2.55	0.41
1:D:307:TYR:O	1:D:311:LEU:HD13	2.20	0.41
1:D:330:GLN:HB2	1:D:359:LYS:HD3	2.02	0.41
1:B:271:ILE:HG23	1:B:271:ILE:O	2.19	0.41
1:B:330:GLN:HB2	1:B:359:LYS:HD3	2.02	0.41
1:C:330:GLN:HB2	1:C:359:LYS:HD3	2.01	0.41
1:B:253:THR:O	1:B:257:PHE:HB2	2.21	0.41
1:B:320:GLY:O	1:B:321:ALA:HB3	2.20	0.41
1:D:264:CYS:HA	1:D:295:GLY:HA3	2.02	0.41
1:A:136:GLU:HB2	1:A:160:PRO:HD3	2.02	0.41
1:D:8:ASP:O	1:D:12:VAL:HG23	2.20	0.41
1:C:264:CYS:HB2	1:C:297:CYS:SG	2.60	0.41
1:C:39:VAL:HG22	1:D:340:TYR:HB3	2.03	0.41
1:C:340:TYR:HB3	1:D:39:VAL:HG22	2.03	0.41
1:D:52:TYR:CE2	1:D:56:ARG:NE	2.88	0.41
1:A:330:GLN:HB2	1:A:359:LYS:HD3	2.02	0.41
1:B:296:PRO:C	1:B:298:PRO:HD3	2.40	0.41
1:C:74:TYR:CE2	1:C:300:ILE:HD13	2.55	0.41
1:A:139:VAL:HB	1:A:190:LEU:HD11	2.03	0.41
1:B:257:PHE:CE2	1:B:268:GLN:HB3	2.56	0.41
1:C:139:VAL:HB	1:C:190:LEU:HD11	2.03	0.41
1:D:222:HIS:CG	1:D:223:GLY:H	2.39	0.41
1:B:139:VAL:HB	1:B:190:LEU:HD11	2.03	0.41
1:B:295:GLY:HA2	1:B:296:PRO:HD3	1.88	0.41
1:B:136:GLU:HB2	1:B:160:PRO:HD3	2.02	0.40
1:C:136:GLU:HB2	1:C:160:PRO:HD3	2.02	0.40
1:D:129:LEU:HD12	1:D:166:TRP:HZ3	1.87	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:222:HIS:CG	1:B:223:GLY:H	2.39	0.40
1:C:5:LYS:O	1:C:9:MET:HG2	2.21	0.40
1:A:178:TRP:CG	1:A:186:GLU:HG3	2.55	0.40
1:A:120:LEU:HD11	1:A:236:LEU:CD2	2.52	0.40
1:B:120:LEU:HD11	1:B:236:LEU:CD2	2.52	0.40
1:C:120:LEU:HD11	1:C:236:LEU:CD2	2.52	0.40
1:C:222:HIS:CG	1:C:223:GLY:H	2.39	0.40

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	332/363 (92%)	295 (89%)	35 (10%)	2 (1%)	25	55
1	B	320/363 (88%)	282 (88%)	36 (11%)	2 (1%)	25	55
1	C	335/363 (92%)	294 (88%)	38 (11%)	3 (1%)	17	47
1	D	334/363 (92%)	294 (88%)	36 (11%)	4 (1%)	13	40
All	All	1321/1452 (91%)	1165 (88%)	145 (11%)	11 (1%)	19	50

All (11) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	70	PRO
1	A	97	GLY
1	B	97	GLY
1	C	97	GLY
1	D	97	GLY
1	A	145	TYR
1	B	145	TYR
1	C	145	TYR

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Mol	Chain	Res	Type
1	D	145	TYR
1	C	0	PRO
1	D	74	TYR

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	302/323 (94%)	302 (100%)	0	100	100
1	B	293/323 (91%)	293 (100%)	0	100	100
1	C	305/323 (94%)	305 (100%)	0	100	100
1	D	305/323 (94%)	305 (100%)	0	100	100
All	All	1205/1292 (93%)	1205 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

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

Mol	Chain	Res	Type
1	A	23	GLN
1	C	155	ASN

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](#)

4 monosaccharides are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	NAG	E	1	1,2	14,14,15	0.59	0	17,19,21	0.83	0
2	NAG	E	2	2	14,14,15	0.55	0	17,19,21	0.60	0
2	NAG	F	1	1,2	14,14,15	0.52	0	17,19,21	0.73	0
2	NAG	F	2	2	14,14,15	0.52	0	17,19,21	0.68	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	NAG	E	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	E	2	2	-	0/6/23/26	0/1/1/1
2	NAG	F	1	1,2	-	2/6/23/26	0/1/1/1
2	NAG	F	2	2	-	0/6/23/26	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) torsion outliers are listed below:

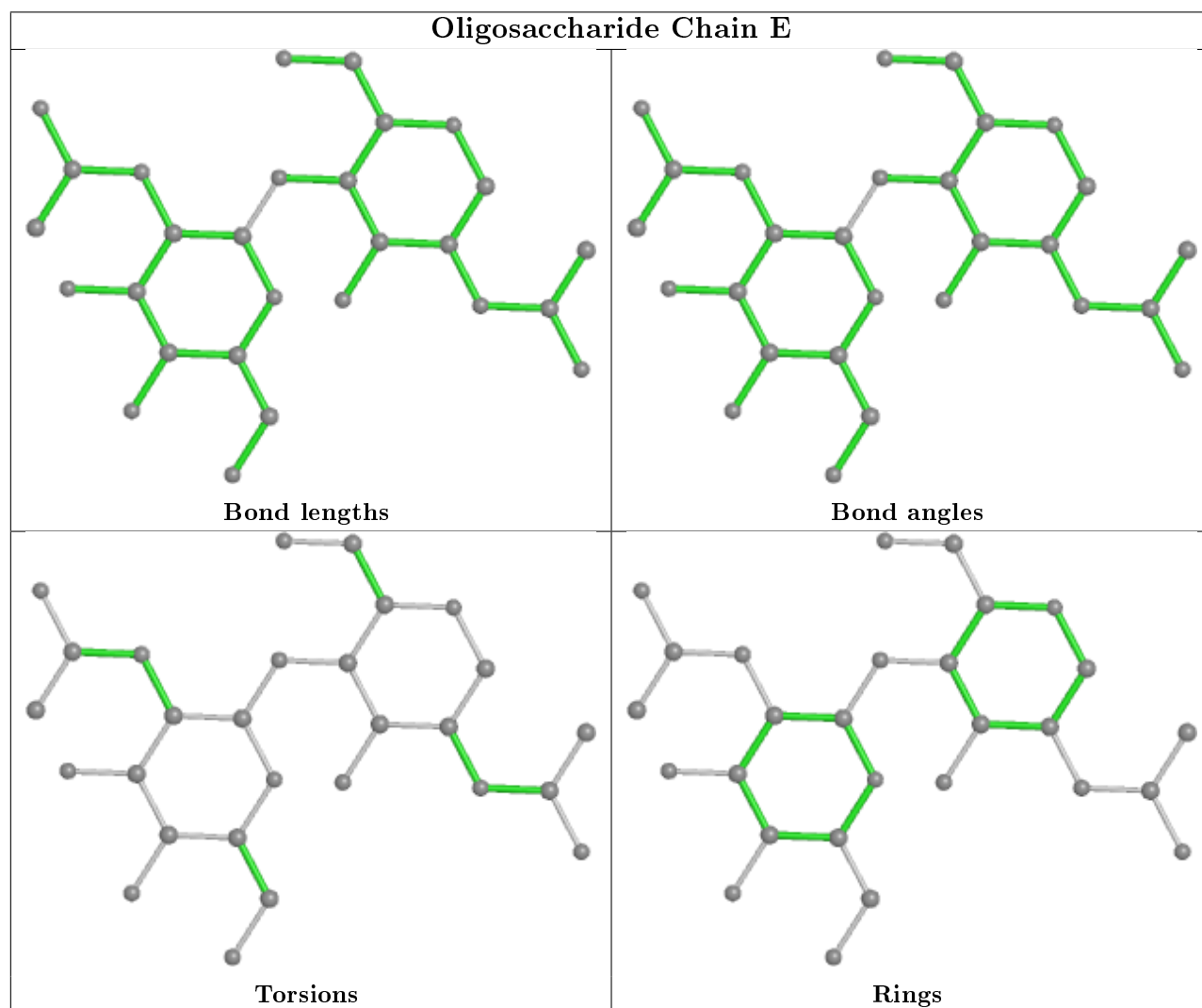
Mol	Chain	Res	Type	Atoms
2	F	1	NAG	C8-C7-N2-C2
2	F	1	NAG	O7-C7-N2-C2

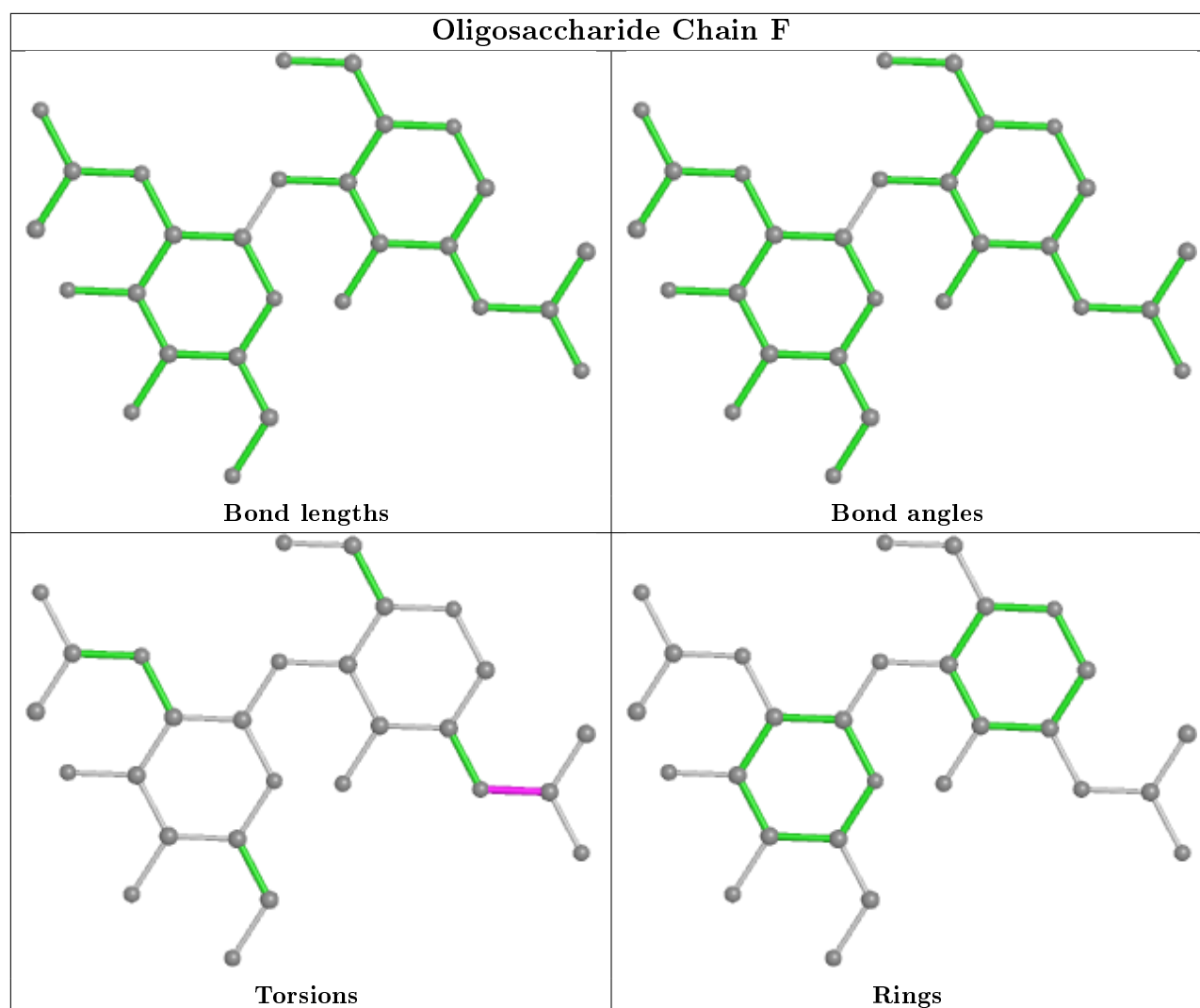
There are no ring outliers.

4 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	E	1	NAG	1	0
2	E	2	NAG	1	0
2	F	2	NAG	2	0
2	F	1	NAG	3	0

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





5.6 Ligand geometry [i](#)

4 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
3	NAG	A	3053	1	14,14,15	0.55	0	17,19,21	0.63	0
3	NAG	D	3053	1	14,14,15	0.51	0	17,19,21	0.70	0
3	NAG	D	3107	1	14,14,15	0.55	0	17,19,21	0.69	0
3	NAG	C	3107	1	14,14,15	0.53	0	17,19,21	0.67	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
3	NAG	A	3053	1	-	0/6/23/26	0/1/1/1
3	NAG	D	3053	1	-	2/6/23/26	0/1/1/1
3	NAG	D	3107	1	-	0/6/23/26	0/1/1/1
3	NAG	C	3107	1	-	2/6/23/26	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	C	3107	NAG	C8-C7-N2-C2
3	C	3107	NAG	O7-C7-N2-C2
3	D	3053	NAG	C4-C5-C6-O6
3	D	3053	NAG	O5-C5-C6-O6

There are no ring outliers.

No monomer is involved in short contacts.

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, 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	340/363 (93%)	0.52	48 (14%) 2 1	102, 217, 358, 468	0
1	B	330/363 (90%)	0.29	20 (6%) 21 8	84, 203, 339, 433	0
1	C	343/363 (94%)	0.23	12 (3%) 44 22	74, 188, 326, 423	0
1	D	342/363 (94%)	0.39	18 (5%) 26 11	94, 194, 348, 467	0
All	All	1355/1452 (93%)	0.36	98 (7%) 15 5	74, 201, 349, 468	0

All (98) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	250	ALA	11.8
1	D	251	LEU	7.2
1	D	252	ASP	7.0
1	C	306	GLN	6.0
1	A	310	VAL	5.8
1	A	2	SER	5.6
1	C	100	HIS	5.4
1	D	258	SER	5.0
1	A	224	MET	5.0
1	C	239	ALA	4.7
1	A	93	ASP	4.7
1	A	309	LYS	4.6
1	A	0	PRO	4.5
1	B	250	ALA	4.4
1	B	62	GLU	4.2
1	D	301	TRP	4.2
1	C	310	VAL	4.2
1	A	100	HIS	4.2
1	A	227	PRO	3.9
1	C	-1	GLY	3.8
1	A	131	LEU	3.7

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Mol	Chain	Res	Type	RSRZ
1	B	36	GLN	3.7
1	B	256	CYS	3.7
1	A	313	LEU	3.6
1	A	307	TYR	3.6
1	A	305	THR	3.5
1	A	218	LEU	3.5
1	A	342	GLY	3.5
1	A	306	GLN	3.3
1	C	62	GLU	3.3
1	B	315	ASN	3.2
1	A	106	PHE	3.1
1	B	345	PRO	3.1
1	A	83	LEU	3.1
1	A	81	ARG	3.1
1	D	105	LEU	3.1
1	A	314	TYR	3.0
1	B	217	ASP	3.0
1	D	198	SER	3.0
1	B	343	ARG	2.9
1	A	219	ALA	2.9
1	A	321	ALA	2.9
1	D	240	GLN	2.9
1	A	82	VAL	2.9
1	D	36	GLN	2.8
1	A	337	ILE	2.8
1	A	208	ASN	2.8
1	C	162	ASP	2.8
1	A	317	HIS	2.8
1	B	241	HIS	2.7
1	C	343	ARG	2.7
1	A	311	LEU	2.7
1	A	229	LEU	2.7
1	D	216	GLY	2.7
1	B	93	ASP	2.6
1	D	37	GLY	2.6
1	D	38	ASP	2.6
1	D	254	ASN	2.5
1	B	292	PHE	2.5
1	A	130	ARG	2.5
1	C	7	ILE	2.5
1	C	111	LEU	2.5
1	A	99	PRO	2.4

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Mol	Chain	Res	Type	RSRZ
1	D	137	GLN	2.4
1	B	92	TYR	2.4
1	A	95	PHE	2.4
1	C	178	TRP	2.4
1	B	106	PHE	2.4
1	D	35	SER	2.4
1	A	339	TYR	2.3
1	D	261	GLU	2.3
1	B	294	LEU	2.3
1	A	230	LEU	2.3
1	A	105	LEU	2.3
1	B	347	VAL	2.3
1	B	205	VAL	2.3
1	D	41	PRO	2.3
1	B	240	GLN	2.2
1	D	100	HIS	2.2
1	A	36	GLN	2.2
1	A	92	TYR	2.2
1	A	231	LEU	2.2
1	A	167	LEU	2.2
1	A	1	LEU	2.2
1	A	128	LEU	2.2
1	A	70	PRO	2.2
1	A	221	ILE	2.2
1	C	0	PRO	2.1
1	A	4	SER	2.1
1	A	220	THR	2.1
1	B	218	LEU	2.1
1	A	166	TRP	2.1
1	B	223	GLY	2.1
1	A	71	GLU	2.1
1	A	308	SER	2.0
1	A	225	ASN	2.0
1	A	3	THR	2.0
1	B	257	PHE	2.0

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

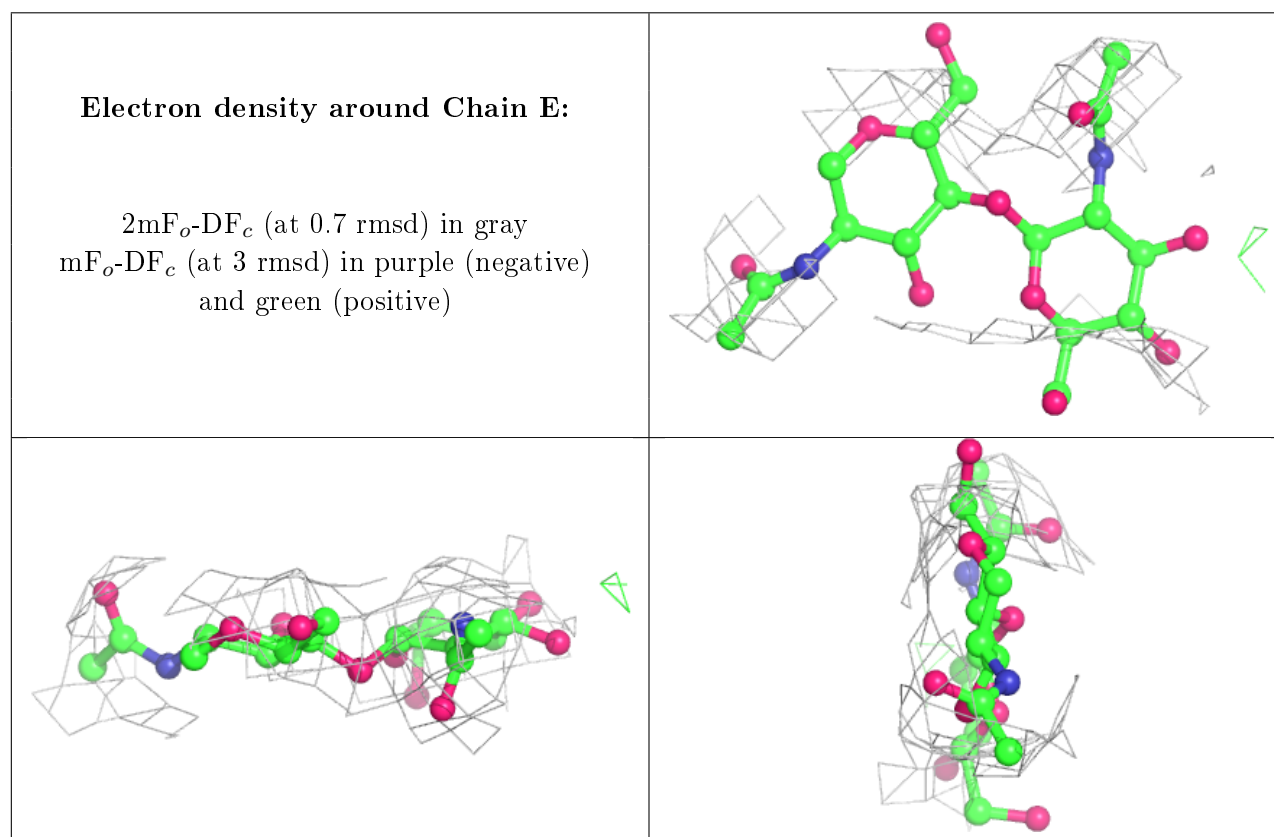
There are no non-standard protein/DNA/RNA residues in this entry.

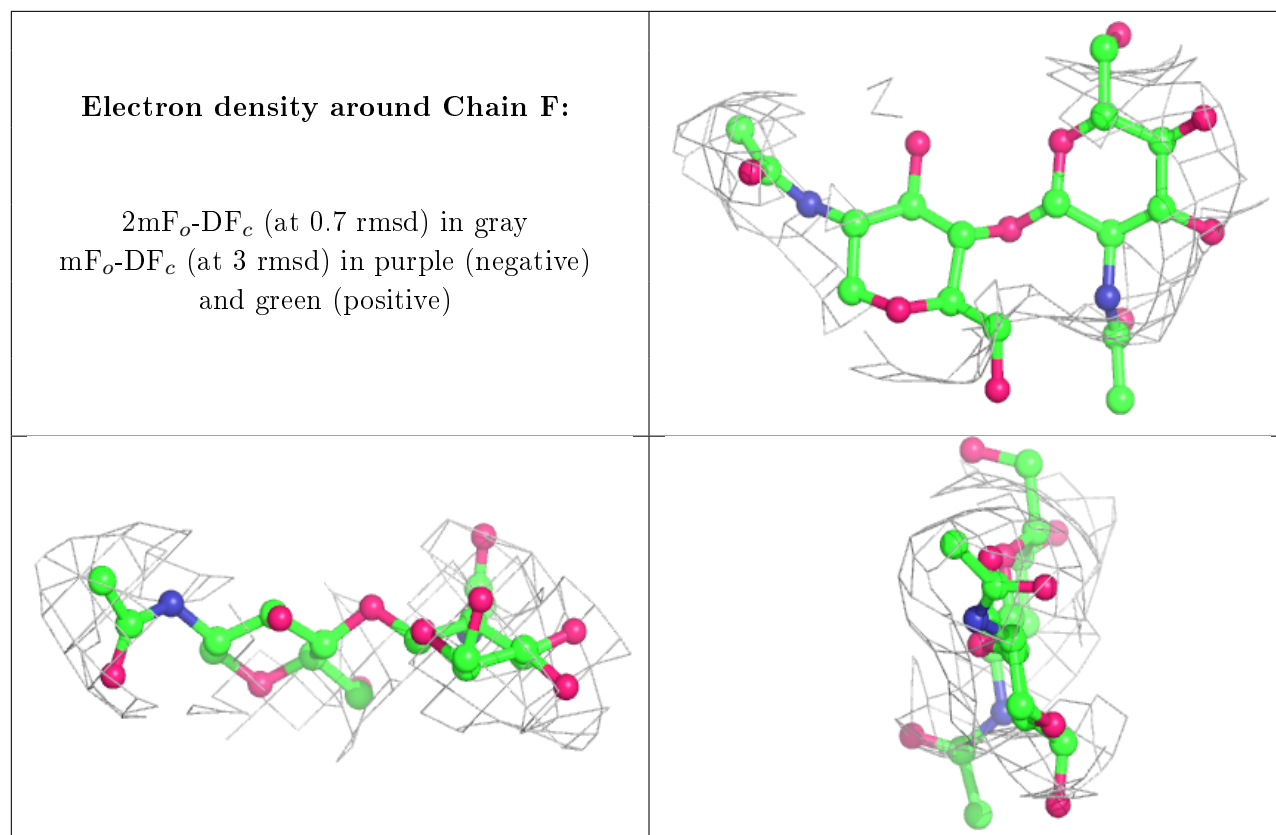
6.3 Carbohydrates [i](#)

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	NAG	E	2	14/15	0.64	0.20	136,290,333,337	0
2	NAG	F	1	14/15	0.89	0.17	96,196,283,318	0
2	NAG	F	2	14/15	0.90	0.28	241,302,378,404	0
2	NAG	E	1	14/15	0.92	0.14	141,232,277,312	0

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





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
3	NAG	A	3053	14/15	0.56	0.27	140,268,304,307	0
3	NAG	D	3107	14/15	0.69	0.38	223,281,316,317	0
3	NAG	C	3107	14/15	0.81	0.25	196,269,311,322	0
3	NAG	D	3053	14/15	0.90	0.12	137,228,254,267	0

6.5 Other polymers [i](#)

There are no such residues in this entry.