Full wwPDB X-ray Structure Validation Report (i)

Feb 10, 2026 – 02:11 PM JST

PDB ID	:	9K1S / pdb_00009k1s
Title	:	Crystal structure of human granzyme A in complex with GSDMB-C domain
Authors	:	Zhong, X.; Hou, Y.J.; Ding, J.
Deposited on	:	2024-10-16
Resolution	:	2.69 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 (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 (1)) were used in the production of this report:

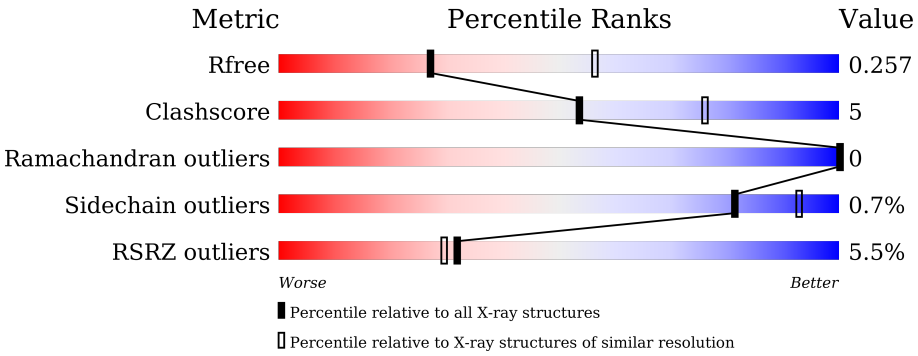
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.48

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 2.69 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	3333 (2.70-2.70)
Clashscore	180529	3684 (2.70-2.70)
Ramachandran outliers	177936	3633 (2.70-2.70)
Sidechain outliers	177891	3633 (2.70-2.70)
RSRZ outliers	164620	3333 (2.70-2.70)

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	242	2% 86% 10% 5%
1	B	242	4% 90% 5% 5%
2	C	176	8% 77% 14% • 9%
2	D	176	9% 78% 14% • 7%
3	E	2	50% 50%
3	F	2	100%

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 6175 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 Granzyme A.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	231	Total	C	N	O	S	0	0	0
			1790	1127	324	324	15			
1	B	231	Total	C	N	O	S	0	0	0
			1790	1127	324	324	15			

There are 18 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	121	THR	MET	variant	UNP P12544
A	263	LEU	-	expression tag	UNP P12544
A	264	GLU	-	expression tag	UNP P12544
A	265	HIS	-	expression tag	UNP P12544
A	266	HIS	-	expression tag	UNP P12544
A	267	HIS	-	expression tag	UNP P12544
A	268	HIS	-	expression tag	UNP P12544
A	269	HIS	-	expression tag	UNP P12544
A	270	HIS	-	expression tag	UNP P12544
B	121	THR	MET	variant	UNP P12544
B	263	LEU	-	expression tag	UNP P12544
B	264	GLU	-	expression tag	UNP P12544
B	265	HIS	-	expression tag	UNP P12544
B	266	HIS	-	expression tag	UNP P12544
B	267	HIS	-	expression tag	UNP P12544
B	268	HIS	-	expression tag	UNP P12544
B	269	HIS	-	expression tag	UNP P12544
B	270	HIS	-	expression tag	UNP P12544

- Molecule 2 is a protein called Isoform 4 of Gasdermin-B.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	C	161	Total	C	N	O	S	0	0	0
			1262	794	204	257	7			

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	D	163	Total	C	N	O	S	0	0	0
			1277	802	206	262	7			

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	241	SER	-	expression tag	UNP Q8TAX9
C	242	GLY	-	expression tag	UNP Q8TAX9
C	243	ARG	-	expression tag	UNP Q8TAX9
C	244	PRO	-	expression tag	UNP Q8TAX9
D	241	SER	-	expression tag	UNP Q8TAX9
D	242	GLY	-	expression tag	UNP Q8TAX9
D	243	ARG	-	expression tag	UNP Q8TAX9
D	244	PRO	-	expression tag	UNP Q8TAX9

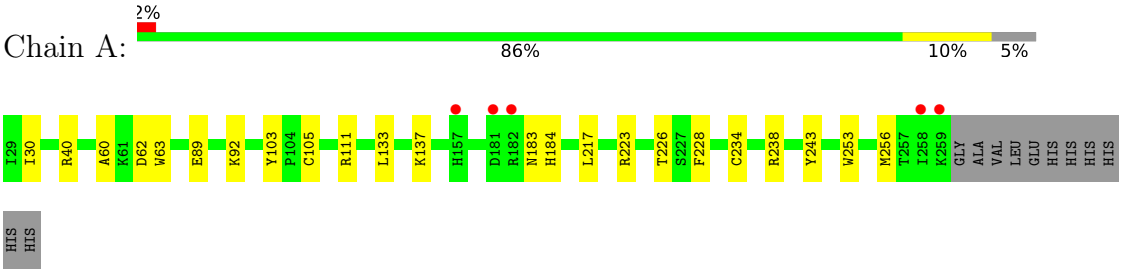
- Molecule 3 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.

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

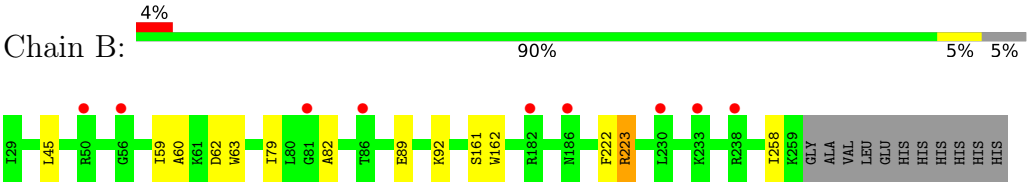
3 Residue-property plots (i)

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.

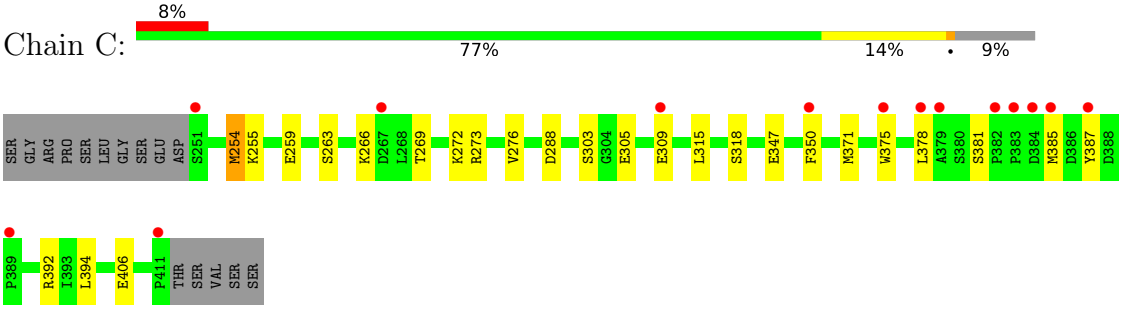
• Molecule 1: Granzyme A



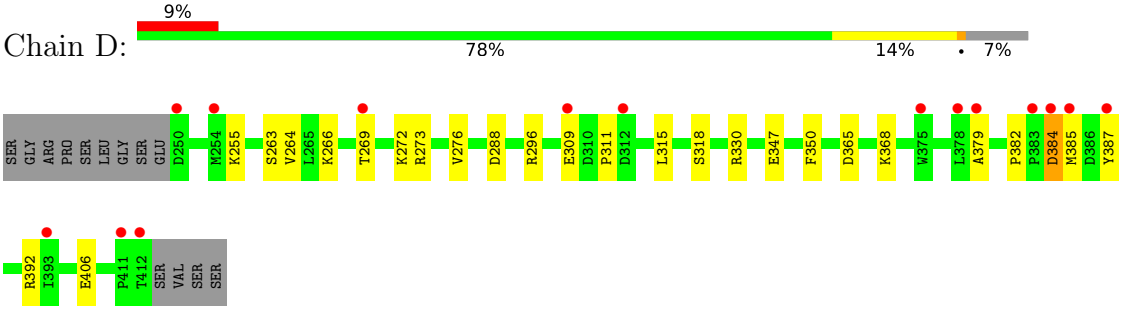
• Molecule 1: Granzyme A



• Molecule 2: Isoform 4 of Gasdermin-B



• Molecule 2: Isoform 4 of Gasdermin-B

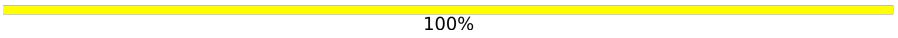


• Molecule 3: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain E:

• Molecule 3: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain F:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	93.74Å 117.42Å 123.84Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	47.29 – 2.69 47.29 – 2.69	Depositor EDS
% Data completeness (in resolution range)	99.8 (47.29-2.69) 96.2 (47.29-2.69)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.95 (at 2.69Å)	Xtriage
Refinement program	PHENIX 1.20.1_4487	Depositor
R, R_{free}	0.236 , 0.257 0.235 , 0.257	Depositor DCC
R_{free} test set	2004 reflections (5.20%)	wwPDB-VP
Wilson B-factor (Å^2)	70.3	Xtriage
Anisotropy	0.359	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 35.5	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.34$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	6175	wwPDB-VP
Average B, all atoms (Å^2)	77.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.47% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: 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	0.11	0/1826	0.34	0/2469
1	B	0.12	0/1826	0.32	0/2469
2	C	0.12	0/1276	0.30	0/1722
2	D	0.11	0/1291	0.30	0/1743
All	All	0.12	0/6219	0.32	0/8403

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	1790	0	1817	13	0
1	B	1790	0	1817	8	0
2	C	1262	0	1278	19	0
2	D	1277	0	1289	21	0
3	E	28	0	25	1	0
3	F	28	0	25	0	0
All	All	6175	0	6251	60	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 5.

All (60) 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)
2:D:272:LYS:HE2	2:D:318:SER:HA	1.57	0.84
2:C:266:LYS:HA	2:C:273:ARG:HH12	1.47	0.79
2:C:269:THR:HB	2:C:272:LYS:HG3	1.70	0.73
2:C:272:LYS:HE2	2:C:318:SER:HA	1.72	0.70
2:D:347:GLU:HA	2:D:350:PHE:HD2	1.62	0.65
2:D:269:THR:HB	2:D:272:LYS:HG3	1.80	0.63
2:D:296:ARG:HH12	2:D:311:PRO:HB2	1.66	0.61
2:C:266:LYS:HA	2:C:273:ARG:NH1	2.17	0.59
1:B:60:ALA:HB3	1:B:63:TRP:HB2	1.86	0.58
2:C:371:MET:HG2	2:C:378:LEU:HD12	1.84	0.58
1:A:60:ALA:HB3	1:A:63:TRP:HB2	1.87	0.57
2:D:382:PRO:HB2	2:D:384:ASP:OD1	2.07	0.55
1:A:253:TRP:HA	1:A:256:MET:HE2	1.90	0.54
2:D:255:LYS:HB2	2:D:379:ALA:HB1	1.88	0.54
1:A:111:ARG:HG2	1:A:228:PHE:CD1	2.43	0.54
1:A:40:ARG:HH12	3:E:2:NAG:H81	1.72	0.53
2:D:382:PRO:HG2	2:D:385:MET:HG2	1.89	0.53
2:D:263:SER:HA	2:D:266:LYS:HE2	1.91	0.53
2:C:288:ASP:N	2:C:288:ASP:OD1	2.43	0.52
2:D:347:GLU:HA	2:D:350:PHE:CD2	2.43	0.52
2:D:288:ASP:OD1	2:D:288:ASP:N	2.43	0.51
2:C:387:TYR:HB3	2:C:392:ARG:HD2	1.92	0.51
2:D:365:ASP:HA	2:D:368:LYS:HG2	1.94	0.49
1:B:62:ASP:OD1	1:B:62:ASP:N	2.40	0.49
2:C:273:ARG:NH2	2:C:406:GLU:O	2.43	0.48
2:C:263:SER:HA	2:C:266:LYS:HE2	1.96	0.48
1:B:59:ILE:HD12	1:B:258:ILE:HD11	1.97	0.47
2:C:255:LYS:HE2	2:C:259:GLU:OE2	2.15	0.46
2:C:303:SER:HB2	2:C:305:GLU:HG2	1.96	0.46
2:C:276:VAL:HG22	2:C:315:LEU:HD12	1.99	0.44
1:B:45:LEU:HD23	1:B:79:ILE:HD12	1.99	0.44
1:B:222:PHE:O	1:B:223:ARG:HD2	2.18	0.44
2:D:266:LYS:HA	2:D:273:ARG:NH1	2.33	0.44
2:D:347:GLU:OE1	2:D:347:GLU:N	2.43	0.44
2:C:371:MET:HG3	2:C:394:LEU:HD23	2.00	0.44
2:D:387:TYR:HB3	2:D:392:ARG:HD2	1.99	0.44
1:A:137:LYS:NZ	2:C:309:GLU:OE2	2.51	0.44
2:C:347:GLU:HA	2:C:350:PHE:HD2	1.83	0.44
1:A:183:ASN:O	1:A:238:ARG:HG3	2.18	0.44
1:A:89:GLU:HB2	1:A:92:LYS:HG3	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:103:TYR:CE2	1:A:105:CYS:HB2	2.52	0.43
2:C:371:MET:HA	2:C:375:TRP:HD1	1.83	0.43
2:C:381:SER:HB3	2:C:385:MET:HG3	2.00	0.43
2:D:264:VAL:HG11	2:D:330:ARG:HA	1.99	0.43
2:D:266:LYS:HA	2:D:273:ARG:HH12	1.83	0.43
1:B:82:ALA:HB2	1:B:92:LYS:HG2	2.01	0.42
2:D:296:ARG:NH1	2:D:311:PRO:HB2	2.32	0.42
1:A:133:LEU:HD11	1:A:217:LEU:HD11	2.02	0.42
1:B:161:SER:OG	1:B:162:TRP:N	2.53	0.42
2:C:315:LEU:O	2:C:318:SER:OG	2.29	0.42
2:D:276:VAL:HG22	2:D:315:LEU:HD12	2.01	0.42
2:D:273:ARG:NH2	2:D:406:GLU:O	2.51	0.41
1:A:184:HIS:HA	1:A:238:ARG:HG3	2.02	0.41
2:D:384:ASP:OD1	2:D:384:ASP:N	2.51	0.41
1:A:62:ASP:OD1	1:A:62:ASP:N	2.43	0.41
1:A:226:THR:HA	1:A:243:TYR:CD2	2.56	0.41
1:B:89:GLU:HB2	1:B:92:LYS:HG3	2.03	0.41
2:C:254:MET:HE1	2:C:371:MET:HE1	2.03	0.40
2:D:315:LEU:O	2:D:318:SER:OG	2.35	0.40
1:A:30:ILE:HG13	1:A:234:CYS:HB3	2.02	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	229/242 (95%)	223 (97%)	6 (3%)	0	100	100
1	B	229/242 (95%)	222 (97%)	7 (3%)	0	100	100
2	C	159/176 (90%)	157 (99%)	2 (1%)	0	100	100
2	D	161/176 (92%)	158 (98%)	3 (2%)	0	100	100
All	All	778/836 (93%)	760 (98%)	18 (2%)	0	100	100

There are no Ramachandran outliers to report.

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	199/208 (96%)	198 (100%)	1 (0%)	86 95
1	B	199/208 (96%)	198 (100%)	1 (0%)	86 95
2	C	143/156 (92%)	142 (99%)	1 (1%)	81 93
2	D	145/156 (93%)	143 (99%)	2 (1%)	62 84
All	All	686/728 (94%)	681 (99%)	5 (1%)	81 93

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

Mol	Chain	Res	Type
1	A	223	ARG
1	B	223	ARG
2	C	254	MET
2	D	309	GLU
2	D	384	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	209	ASN
1	A	232	ASN
1	B	232	ASN

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 (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	$\#\|Z\| > 2$
3	NAG	E	1	3,1	14,14,15	2.16	4 (28%)	17,19,21	0.99	1 (5%)
3	NAG	E	2	3	14,14,15	2.18	4 (28%)	17,19,21	1.04	1 (5%)
3	NAG	F	1	3,1	14,14,15	2.17	5 (35%)	17,19,21	1.13	2 (11%)
3	NAG	F	2	3	14,14,15	2.24	4 (28%)	17,19,21	1.14	1 (5%)

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	E	1	3,1	-	1/6/23/26	0/1/1/1
3	NAG	E	2	3	-	2/6/23/26	0/1/1/1
3	NAG	F	1	3,1	-	2/6/23/26	0/1/1/1
3	NAG	F	2	3	-	0/6/23/26	0/1/1/1

All (17) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	F	2	NAG	O5-C1	5.64	1.52	1.43
3	E	2	NAG	O5-C1	5.46	1.52	1.43
3	F	1	NAG	O5-C1	5.32	1.52	1.43
3	E	1	NAG	O5-C1	5.10	1.51	1.43
3	E	1	NAG	C7-N2	4.01	1.48	1.34
3	F	2	NAG	C7-N2	3.94	1.47	1.34
3	E	2	NAG	C7-N2	3.88	1.47	1.34
3	F	1	NAG	C7-N2	3.85	1.47	1.34
3	E	1	NAG	C2-N2	3.35	1.52	1.46
3	F	2	NAG	C2-N2	3.30	1.51	1.46
3	E	2	NAG	C2-N2	3.16	1.51	1.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	F	1	NAG	C2-N2	3.05	1.51	1.46
3	E	1	NAG	O7-C7	-2.25	1.18	1.23
3	F	2	NAG	O7-C7	-2.24	1.18	1.23
3	F	1	NAG	O7-C7	-2.20	1.18	1.23
3	E	2	NAG	O7-C7	-2.16	1.18	1.23
3	F	1	NAG	O5-C5	2.09	1.47	1.43

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	F	2	NAG	C8-C7-N2	2.51	120.36	116.10
3	F	1	NAG	C2-N2-C7	-2.39	119.50	122.90
3	E	2	NAG	C8-C7-N2	2.31	120.02	116.10
3	F	1	NAG	C8-C7-N2	2.30	119.99	116.10
3	E	1	NAG	C8-C7-N2	2.16	119.76	116.10

There are no chirality outliers.

All (5) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	E	2	NAG	C8-C7-N2-C2
3	E	2	NAG	O7-C7-N2-C2
3	F	1	NAG	C8-C7-N2-C2
3	F	1	NAG	O7-C7-N2-C2
3	E	1	NAG	C3-C2-N2-C7

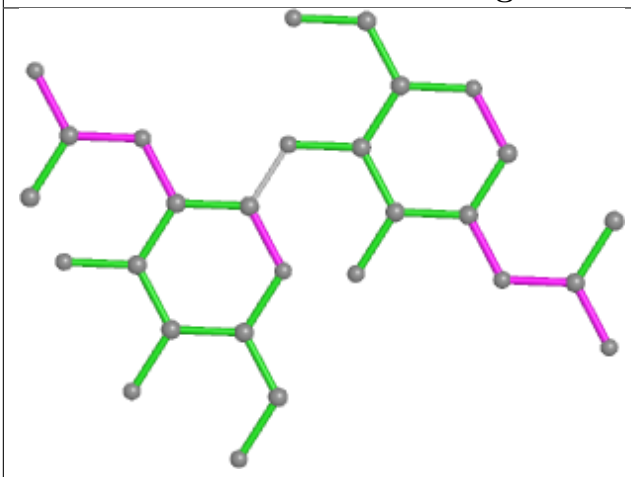
There are no ring outliers.

1 monomer is involved in 1 short contact:

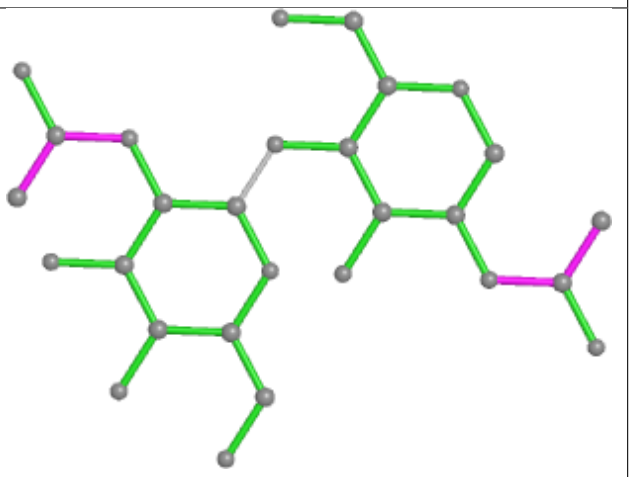
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	E	2	NAG	1	0

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

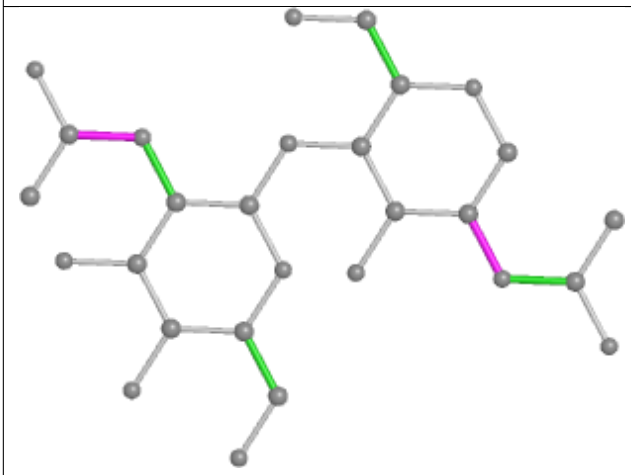
Oligosaccharide Chain E



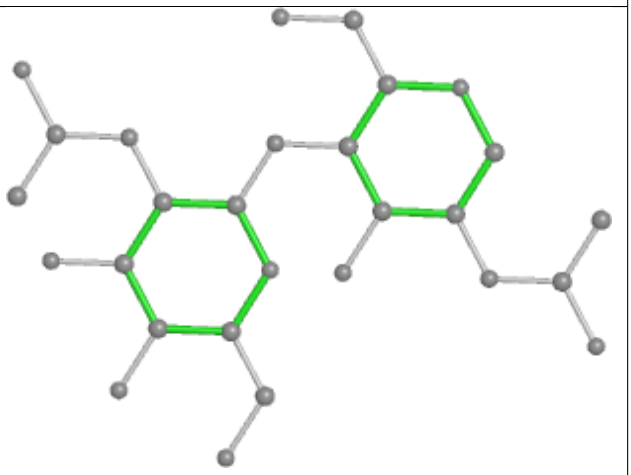
Bond lengths



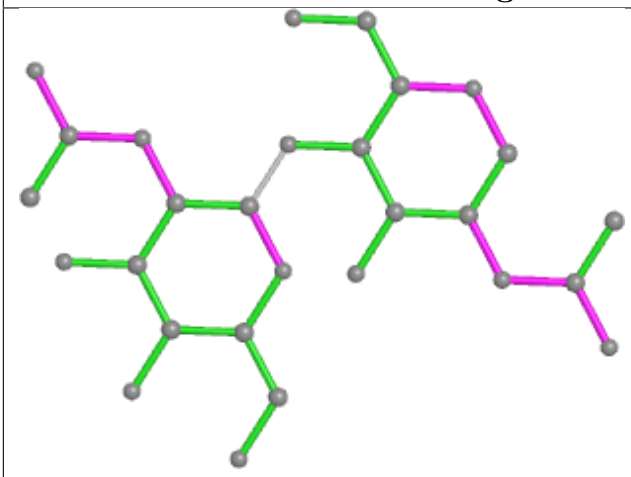
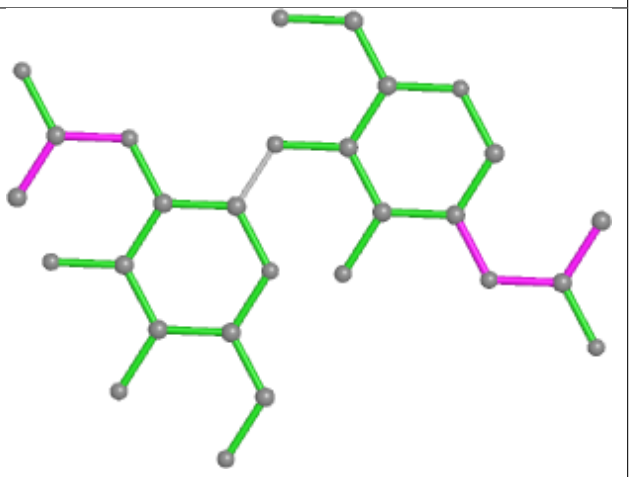
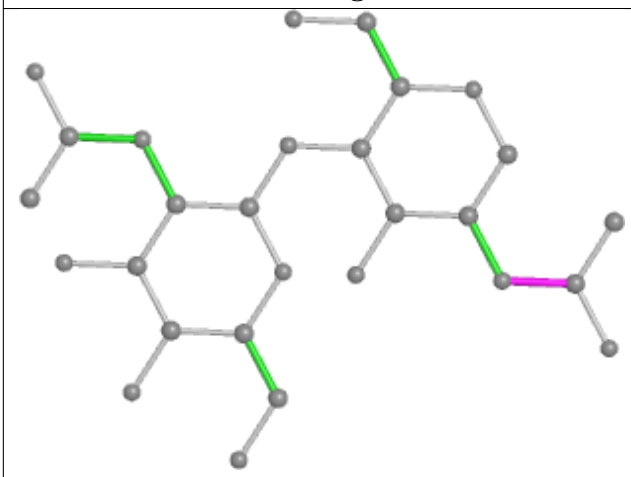
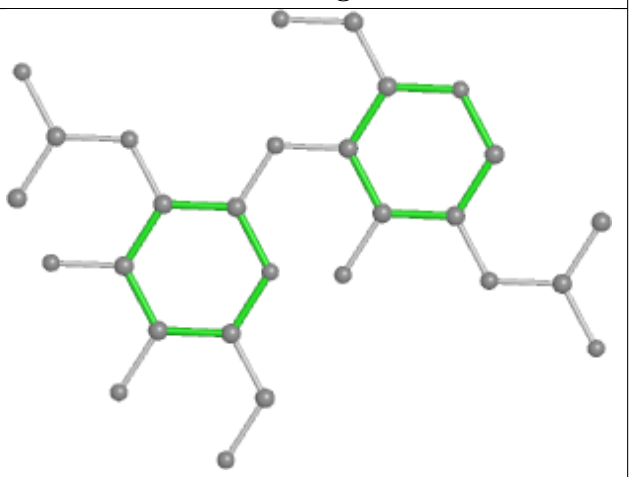
Bond angles



Torsions



Rings

Oligosaccharide Chain F	
 Bond lengths	 Bond angles
 Torsions	 Rings

5.6 Ligand geometry

There are no ligands in this entry.

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	231/242 (95%)	0.21	5 (2%)	62	61	43, 61, 87, 105	0
1	B	231/242 (95%)	0.63	9 (3%)	44	42	50, 73, 98, 115	0
2	C	161/176 (91%)	0.66	14 (8%)	17	16	48, 76, 134, 154	0
2	D	163/176 (92%)	0.88	15 (9%)	16	15	54, 88, 140, 160	0
All	All	786/836 (94%)	0.56	43 (5%)	32	29	43, 73, 115, 160	0

All (43) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	C	383	PRO	5.8
2	C	411	PRO	4.2
2	C	379	ALA	4.2
2	C	382	PRO	3.5
2	D	379	ALA	3.4
2	D	254	MET	3.3
2	D	383	PRO	3.3
2	C	350	PHE	3.0
2	C	387	TYR	2.9
1	A	182	ARG	2.8
2	C	375	TRP	2.7
2	D	393	ILE	2.7
2	D	411	PRO	2.6
1	B	56	GLY	2.6
2	D	412	THR	2.5
2	D	378	LEU	2.5
1	B	182	ARG	2.5
2	C	378	LEU	2.4
1	A	258	ILE	2.4
2	D	385	MET	2.3
2	D	375	TRP	2.3

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Mol	Chain	Res	Type	RSRZ
2	C	385	MET	2.2
2	D	387	TYR	2.2
2	D	309	GLU	2.2
2	C	267	ASP	2.2
2	C	251	SER	2.2
2	C	384	ASP	2.2
2	D	312	ASP	2.2
1	B	81	GLY	2.2
2	D	250	ASP	2.1
1	B	50	ARG	2.1
1	B	86	THR	2.1
1	B	230	LEU	2.1
1	B	238	ARG	2.1
1	A	181	ASP	2.1
2	D	384	ASP	2.1
2	D	269	THR	2.0
1	B	186	ASN	2.0
2	C	389	PRO	2.0
1	A	259	LYS	2.0
1	B	233	LYS	2.0
1	A	157	HIS	2.0
2	C	309	GLU	2.0

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)

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

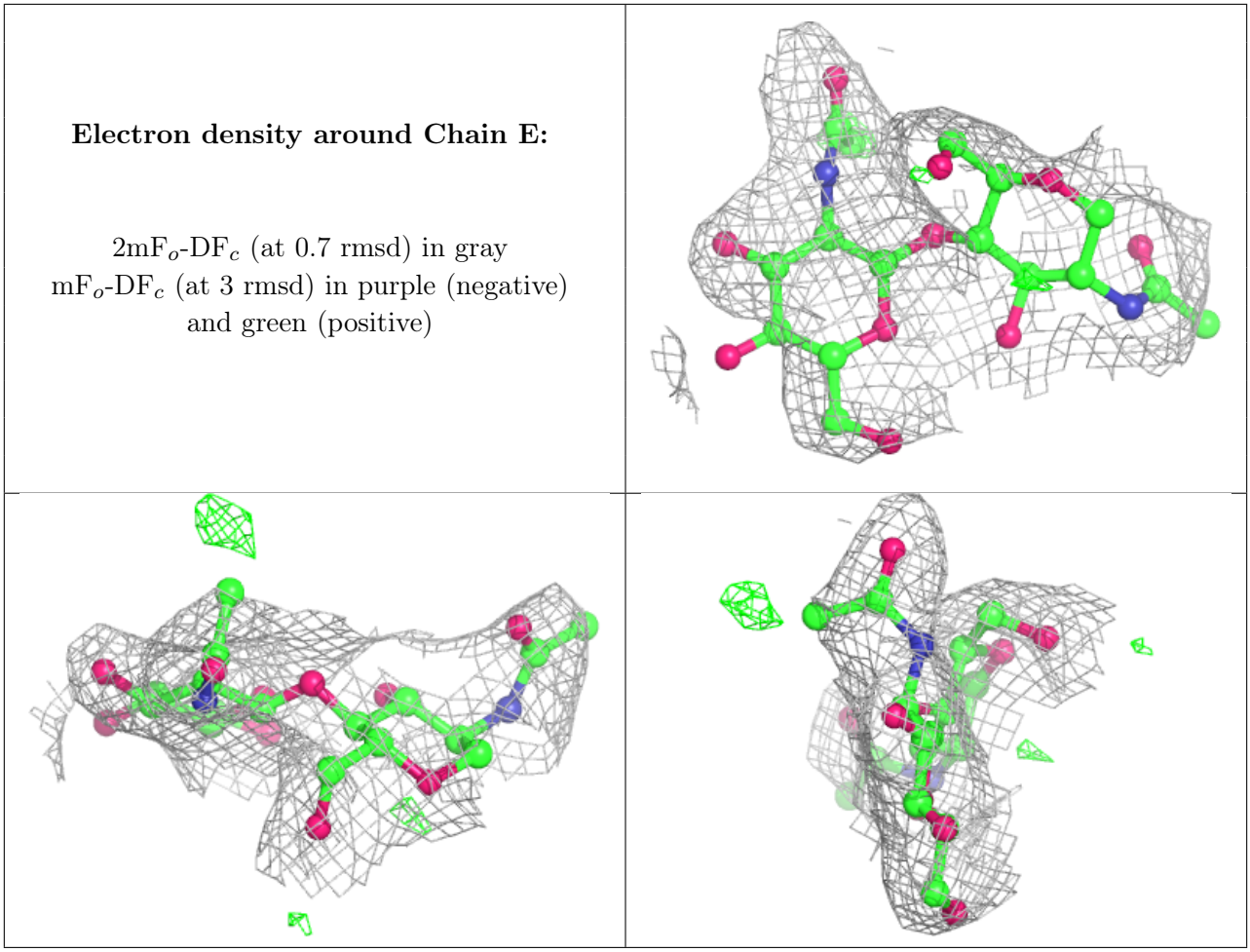
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	NAG	F	1	14/15	0.35	0.18	107,118,134,148	0
3	NAG	F	2	14/15	0.48	0.17	133,148,155,157	0
3	NAG	E	2	14/15	0.56	0.14	97,120,136,137	0
3	NAG	E	1	14/15	0.72	0.15	99,103,119,120	0

The following is a graphical depiction of the model fit to experimental electron density for oligosac-

charide. Each fit is shown from different orientation to approximate a three-dimensional view.

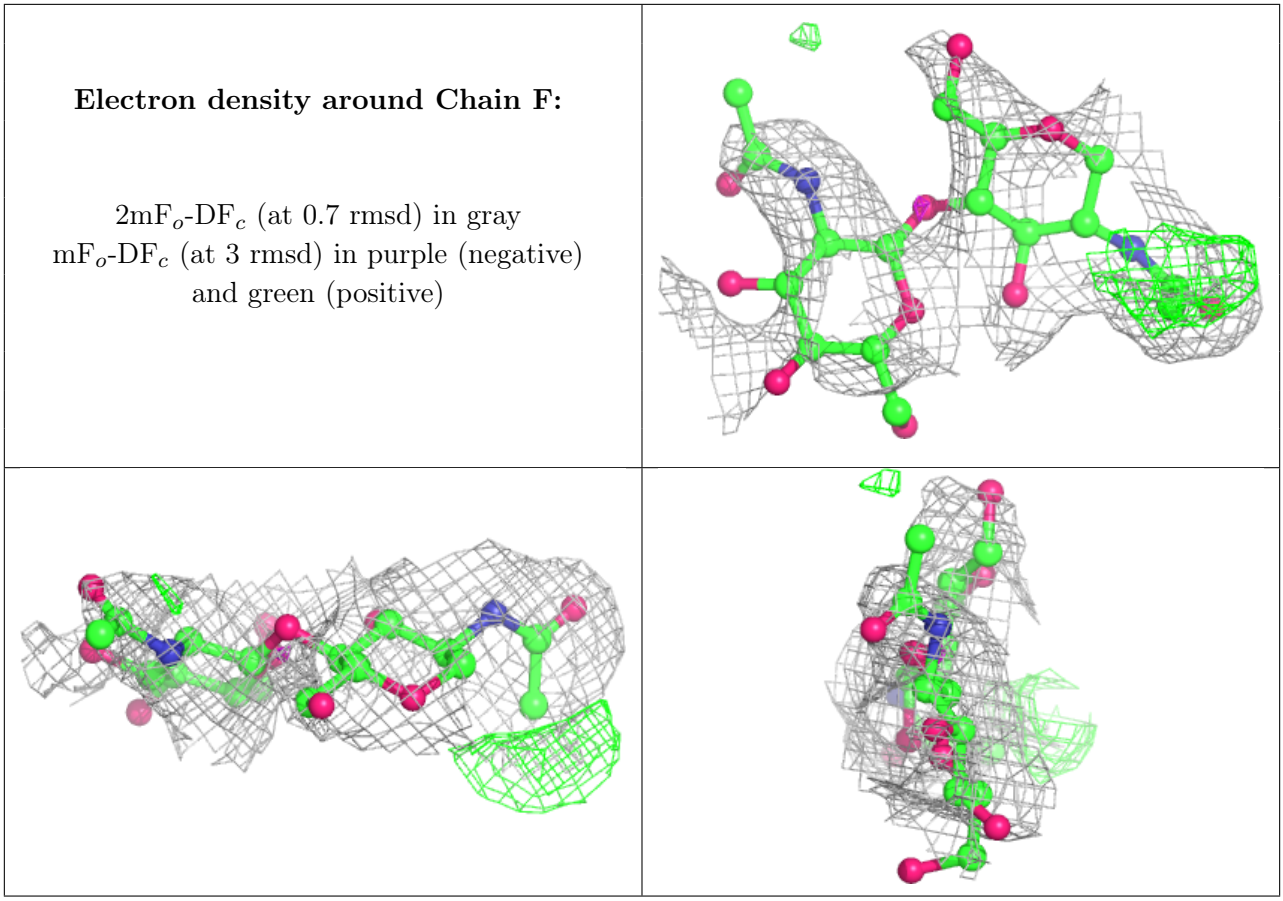
Electron density around Chain E:

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



Electron density around Chain F:

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



6.4 Ligands

There are no ligands in this entry.

6.5 Other polymers

There are no such residues in this entry.