Full wwPDB X-ray Structure Validation Report (i)

Jan 30, 2024 – 05:58 PM EST

PDB ID	:	1I8Q
Title	:	CRYSTAL STRUCTURE OF STREPTOCOCCUS AGALACTIAE HYALURONATE LYASE COMPLEXED WITH ENZYME PRODUCT, UNSATURATED DISACCHARIDE HYALURONAN
Authors	:	Li, S.; Jedrzejas, M.J.
Deposited on	:	2001-03-15
Resolution	:	2.20 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 (i)) were used in the production of this report:

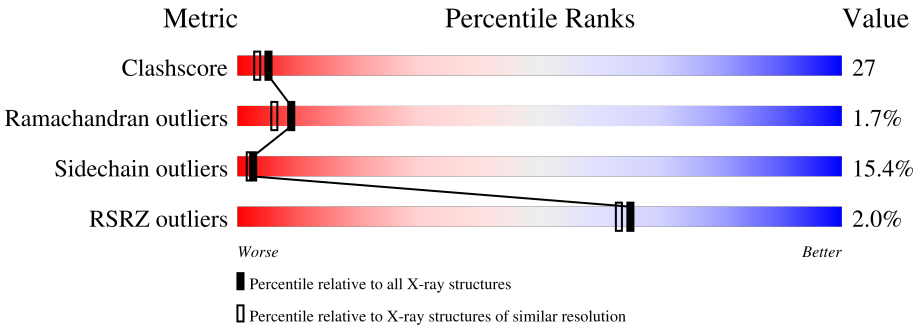
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, 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 2.20 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))
Clashscore	141614	5594 (2.20-2.20)
Ramachandran outliers	138981	5503 (2.20-2.20)
Sidechain outliers	138945	5504 (2.20-2.20)
RSRZ outliers	127900	4800 (2.20-2.20)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	814	2% 50% 41% 9%
2	B	2	100%
2	C	2	50% 50%

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	NAG	B	1	-	-	-	X
2	GC4	B	2	-	-	-	X

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 6794 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 HYALURONATE LYASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	814	Total	C	N	O	S	0	0	0
			6513	4101	1108	1286	18			

There are 9 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	246	ALA	GLY	SEE REMARK 999	UNP Q53591
A	248	THR	PRO	SEE REMARK 999	UNP Q53591
A	280	ASN	THR	SEE REMARK 999	UNP Q53591
A	288	ALA	GLY	SEE REMARK 999	UNP Q53591
A	583	THR	ALA	SEE REMARK 999	UNP Q53591
A	688	PHE	LEU	SEE REMARK 999	UNP Q53591
A	689	TRP	GLY	SEE REMARK 999	UNP Q53591
A	882	GLN	LEU	SEE REMARK 999	UNP Q53591
A	894	MET	LEU	SEE REMARK 999	UNP Q53591

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

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
2	B	2	Total	C	N	O	0	0	0
			26	14	1	11			
2	C	2	Total	C	N	O	0	0	0
			26	14	1	11			

- Molecule 3 is water.

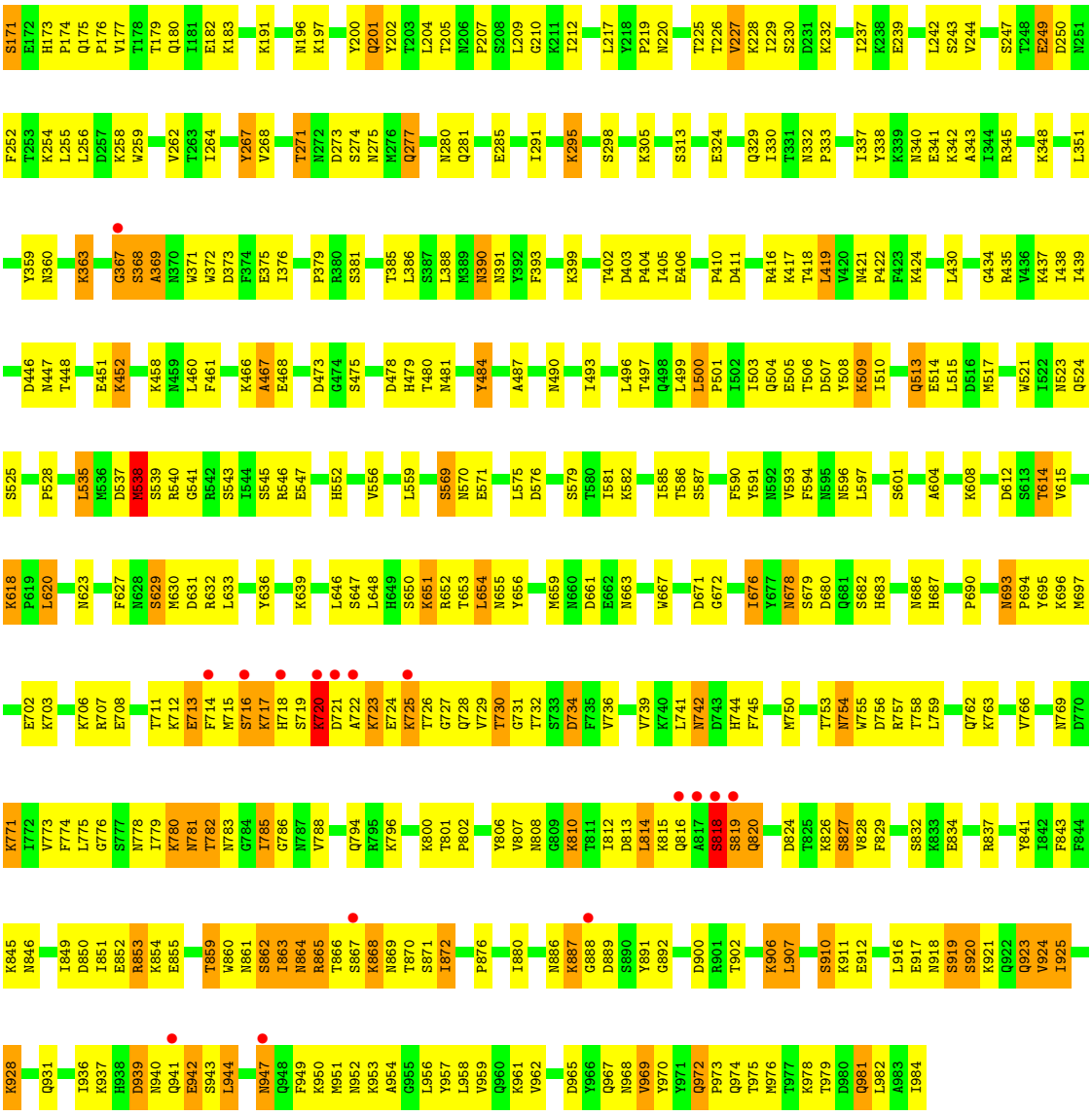
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	229	Total O 229 229	0	0

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.

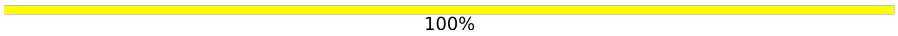
• Molecule 1: HYALURONATE LYASE

Chain A: 



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

Chain B:



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

Chain C:

4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α, β, γ	51.03Å 155.02Å 237.27Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	20.00 – 2.20 47.49 – 2.20	Depositor EDS
% Data completeness (in resolution range)	98.2 (20.00-2.20) 97.6 (47.49-2.20)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.29 (at 2.20Å)	Xtriage
Refinement program	X-PLOR 3.851	Depositor
R, R_{free}	0.182 , 0.252 0.214 , (Not available)	Depositor DCC
R_{free} test set	No test flags present.	wwPDB-VP
Wilson B-factor (Å^2)	34.7	Xtriage
Anisotropy	0.335	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 65.1	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	6794	wwPDB-VP
Average B, all atoms (Å^2)	37.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.63% 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: GC4, 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	0.40	0/6640	0.62	0/8988

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	6513	0	6405	350	1
2	B	26	0	21	0	0
2	C	26	0	21	3	0
3	A	229	0	0	15	0
All	All	6794	0	6447	350	1

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 27.

All (350) 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:808:ASN:HD21	1:A:826:LYS:H	1.07	1.01
1:A:723:LYS:HB3	1:A:728:GLN:HB2	1.43	1.00
1:A:504:GLN:HE22	1:A:510:ILE:H	1.07	0.95
1:A:468:GLU:HG2	1:A:478:ASP:HA	1.50	0.94
1:A:742:ASN:HD22	1:A:744:HIS:H	1.16	0.94
1:A:513:GLN:H	1:A:513:GLN:HE21	1.14	0.94
1:A:944:LEU:HD21	1:A:950:LYS:HG3	1.51	0.92
1:A:716:SER:O	1:A:717:LYS:HB3	1.71	0.91
1:A:228:LYS:HG3	1:A:239:GLU:HG3	1.51	0.91
1:A:939:ASP:O	1:A:954:ALA:HB2	1.69	0.91
1:A:859:THR:HG22	1:A:862:SER:H	1.34	0.90
1:A:944:LEU:CD2	1:A:950:LYS:HG3	2.02	0.90
1:A:972:GLN:NE2	1:A:975:THR:H	1.71	0.89
1:A:582:LYS:O	1:A:586:THR:HG23	1.74	0.88
1:A:861:ASN:HA	1:A:867:SER:HB3	1.57	0.85
1:A:916:LEU:HB2	1:A:924:VAL:HG22	1.58	0.82
1:A:732:THR:OG1	1:A:753:THR:HG21	1.80	0.82
1:A:281:GLN:O	1:A:285:GLU:HG3	1.79	0.82
1:A:783:ASN:OD1	1:A:785:ILE:HG22	1.80	0.82
1:A:785:ILE:HD12	1:A:786:GLY:H	1.46	0.81
1:A:808:ASN:HD21	1:A:826:LYS:N	1.79	0.81
1:A:864:ASN:ND2	1:A:866:THR:HB	1.98	0.79
1:A:340:ASN:HD22	1:A:343:ALA:H	1.29	0.77
1:A:808:ASN:ND2	1:A:827:SER:H	1.83	0.76
1:A:219:PRO:HB3	1:A:244:VAL:HG11	1.68	0.76
1:A:227:VAL:HG22	1:A:242:LEU:HB2	1.67	0.75
1:A:800:LYS:O	1:A:802:PRO:HD3	1.85	0.74
1:A:678:ASN:ND2	1:A:680:ASP:H	1.84	0.74
1:A:683:HIS:HE1	1:A:796:LYS:H	1.33	0.73
1:A:808:ASN:ND2	1:A:826:LYS:H	1.85	0.73
1:A:972:GLN:HG3	3:A:1248:HOH:O	1.88	0.73
1:A:258:LYS:O	1:A:262:VAL:HG23	1.88	0.73
1:A:919:SER:OG	1:A:921:LYS:HG2	1.89	0.73
1:A:201:GLN:HA	1:A:201:GLN:NE2	2.02	0.73
1:A:814:LEU:C	1:A:816:GLN:H	1.90	0.73
1:A:683:HIS:CE1	1:A:796:LYS:H	2.07	0.72
1:A:742:ASN:ND2	1:A:744:HIS:H	1.89	0.71
1:A:513:GLN:HE21	1:A:513:GLN:N	1.87	0.70
1:A:742:ASN:HA	3:A:1231:HOH:O	1.92	0.69
1:A:820:GLN:HE22	1:A:852:GLU:HG3	1.55	0.69
1:A:785:ILE:HD12	1:A:786:GLY:N	2.06	0.69
1:A:227:VAL:CG2	1:A:242:LEU:HB2	2.23	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:693:ASN:C	1:A:693:ASN:HD22	1.96	0.68
1:A:864:ASN:HD21	1:A:866:THR:HB	1.56	0.68
1:A:513:GLN:H	1:A:513:GLN:NE2	1.89	0.67
1:A:340:ASN:ND2	1:A:343:ALA:H	1.92	0.67
1:A:972:GLN:HE22	1:A:974:GLN:N	1.92	0.67
1:A:678:ASN:C	1:A:678:ASN:HD22	1.99	0.65
1:A:360:ASN:HA	1:A:404:PRO:HG3	1.78	0.65
1:A:944:LEU:HD22	1:A:949:PHE:O	1.96	0.65
1:A:719:SER:C	1:A:720:LYS:HG2	2.17	0.65
1:A:972:GLN:HE21	1:A:975:THR:H	1.45	0.64
1:A:774:PHE:O	1:A:775:LEU:HD23	1.98	0.64
1:A:359:TYR:CE2	1:A:404:PRO:HB2	2.33	0.64
1:A:202:TYR:CE2	1:A:229:ILE:HG12	2.33	0.64
1:A:579:SER:OG	1:A:618:LYS:HD2	1.98	0.64
1:A:736:VAL:HG13	1:A:750:MET:HB2	1.80	0.63
1:A:814:LEU:C	1:A:816:GLN:N	2.51	0.62
1:A:758:THR:HA	1:A:782:THR:HG21	1.81	0.62
1:A:504:GLN:NE2	1:A:510:ILE:H	1.89	0.62
1:A:496:LEU:HG	1:A:500:LEU:CD2	2.30	0.62
1:A:434:GLY:O	1:A:438:ILE:HG12	2.00	0.61
1:A:604:ALA:O	1:A:608:LYS:HG3	2.00	0.61
1:A:859:THR:HG22	1:A:862:SER:HB3	1.82	0.61
1:A:367:GLY:O	1:A:368:SER:HB3	2.00	0.61
1:A:859:THR:HG22	1:A:862:SER:N	2.11	0.61
1:A:371:TRP:O	1:A:375:GLU:HG3	2.01	0.61
1:A:448:THR:O	1:A:452:LYS:HD2	2.02	0.60
1:A:741:LEU:HD13	1:A:969:VAL:HG22	1.84	0.60
1:A:916:LEU:H	1:A:916:LEU:HD12	1.66	0.60
1:A:255:LEU:HD21	1:A:505:GLU:HB3	1.83	0.59
1:A:940:ASN:O	1:A:941:GLN:HB2	2.02	0.59
1:A:723:LYS:HA	1:A:726:THR:OG1	2.02	0.59
1:A:416:ARG:HH22	2:C:1:NAG:H5	1.68	0.59
1:A:722:ALA:O	1:A:724:GLU:N	2.29	0.59
1:A:648:LEU:HD23	1:A:672:GLY:HA2	1.84	0.59
1:A:179:THR:HA	3:A:1192:HOH:O	2.02	0.59
1:A:800:LYS:HE2	3:A:1276:HOH:O	2.01	0.59
1:A:217:LEU:HD22	1:A:242:LEU:HD11	1.84	0.58
1:A:499:LEU:HB3	1:A:503:ILE:CD1	2.33	0.58
1:A:712:LYS:HA	1:A:715:MET:HB2	1.85	0.58
1:A:758:THR:O	1:A:781:ASN:O	2.21	0.58
1:A:687:HIS:C	1:A:690:PRO:HD2	2.24	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:729:VAL:HG22	1:A:730:THR:N	2.19	0.58
1:A:581:ILE:O	1:A:585:ILE:HG12	2.03	0.58
1:A:864:ASN:HD22	1:A:866:THR:H	1.50	0.58
1:A:484:TYR:CE1	1:A:541:GLY:HA3	2.39	0.57
1:A:781:ASN:O	1:A:782:THR:HB	2.01	0.57
1:A:430:LEU:HD23	1:A:460:LEU:HG	1.84	0.57
1:A:678:ASN:HD21	1:A:680:ASP:HB3	1.69	0.57
1:A:944:LEU:HD12	1:A:947:ASN:HA	1.87	0.57
1:A:227:VAL:O	1:A:239:GLU:HA	2.05	0.57
1:A:950:LYS:O	1:A:984:ILE:HG22	2.05	0.57
1:A:781:ASN:HD22	1:A:781:ASN:C	2.08	0.57
1:A:273:ASP:OD1	1:A:275:ASN:HB2	2.05	0.56
1:A:473:ASP:OD2	1:A:629:SER:HB2	2.06	0.56
1:A:814:LEU:HD13	1:A:853:ARG:HB3	1.87	0.56
1:A:808:ASN:HD22	1:A:827:SER:H	1.54	0.56
1:A:475:SER:HB2	1:A:629:SER:HB2	1.87	0.55
1:A:719:SER:C	1:A:721:ASP:H	2.08	0.55
1:A:820:GLN:HE22	1:A:852:GLU:CG	2.19	0.55
1:A:721:ASP:OD2	1:A:725:LYS:HB2	2.06	0.55
1:A:205:THR:O	1:A:207:PRO:HD3	2.07	0.55
1:A:918:ASN:HA	1:A:923:GLN:HG3	1.88	0.55
1:A:919:SER:HG	1:A:921:LYS:HG2	1.71	0.55
1:A:711:THR:O	1:A:715:MET:HG3	2.07	0.55
1:A:771:LYS:HD3	1:A:907:LEU:HD11	1.89	0.55
1:A:824:ASP:HA	1:A:846:ASN:HB3	1.89	0.55
1:A:230:SER:HA	1:A:237:ILE:HD12	1.89	0.54
1:A:690:PRO:HG3	1:A:860:TRP:CE2	2.42	0.54
1:A:250:ASP:O	1:A:254:LYS:HG2	2.07	0.54
1:A:435:ARG:O	1:A:439:ILE:HG12	2.07	0.54
1:A:763:LYS:HG2	1:A:891:TYR:OH	2.07	0.54
1:A:402:THR:HA	1:A:405:ILE:HD12	1.90	0.54
1:A:523:ASN:O	1:A:528:PRO:HD3	2.07	0.54
1:A:582:LYS:HD3	1:A:615:VAL:HG12	1.88	0.54
1:A:693:ASN:HD22	1:A:694:PRO:N	2.06	0.54
1:A:538:MET:HG3	3:A:1267:HOH:O	2.08	0.53
1:A:654:LEU:HD13	1:A:656:TYR:O	2.08	0.53
1:A:872:ILE:O	1:A:872:ILE:HG13	2.08	0.53
1:A:410:PRO:HD2	3:A:1151:HOH:O	2.08	0.53
1:A:718:HIS:O	1:A:721:ASP:HB3	2.09	0.53
1:A:826:LYS:HG3	1:A:846:ASN:ND2	2.24	0.53
1:A:703:LYS:NZ	1:A:781:ASN:ND2	2.57	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:703:LYS:HG3	1:A:788:VAL:HG22	1.91	0.53
1:A:806:TYR:HA	1:A:810:LYS:O	2.07	0.53
1:A:781:ASN:O	1:A:781:ASN:ND2	2.41	0.53
1:A:782:THR:HG22	1:A:783:ASN:N	2.24	0.52
1:A:468:GLU:CG	1:A:478:ASP:HA	2.33	0.52
1:A:651:LYS:HA	1:A:731:GLY:O	2.09	0.52
1:A:496:LEU:HG	1:A:500:LEU:HD22	1.91	0.52
1:A:468:GLU:OE1	1:A:480:THR:N	2.39	0.52
1:A:820:GLN:HA	1:A:851:ILE:O	2.10	0.52
1:A:479:HIS:O	1:A:480:THR:HB	2.10	0.52
1:A:806:TYR:HB2	1:A:829:PHE:HB3	1.92	0.51
1:A:258:LYS:HE2	1:A:501:PRO:O	2.10	0.51
1:A:313:SER:HB2	1:A:373:ASP:HB2	1.92	0.51
1:A:703:LYS:NZ	1:A:781:ASN:HD21	2.09	0.51
1:A:766:VAL:HB	1:A:773:VAL:HB	1.93	0.51
1:A:499:LEU:O	1:A:503:ILE:HD12	2.11	0.51
1:A:594:PHE:CD1	1:A:597:LEU:HD12	2.45	0.51
1:A:958:LEU:O	1:A:968:ASN:HA	2.11	0.51
1:A:182:GLU:HG3	1:A:196:ASN:ND2	2.26	0.51
1:A:416:ARG:NH2	2:C:1:NAG:H5	2.25	0.51
1:A:540:ARG:O	1:A:543:SER:HB2	2.11	0.51
1:A:693:ASN:ND2	1:A:695:TYR:H	2.07	0.51
1:A:411:ASP:HA	3:A:1149:HOH:O	2.10	0.51
1:A:493:ILE:O	1:A:497:THR:HG23	2.11	0.51
1:A:944:LEU:HD23	1:A:950:LYS:HG3	1.87	0.51
1:A:403:ASP:N	1:A:404:PRO:CD	2.74	0.51
1:A:814:LEU:HG	1:A:819:SER:HB3	1.93	0.51
1:A:504:GLN:HE22	1:A:510:ILE:N	1.91	0.50
1:A:708:GLU:HG3	1:A:714:PHE:CE1	2.46	0.50
1:A:762:GLN:HE22	1:A:920:SER:HA	1.76	0.50
1:A:461:PHE:CD2	1:A:514:GLU:HG2	2.46	0.50
1:A:716:SER:O	1:A:717:LYS:CB	2.52	0.50
1:A:324:GLU:HA	1:A:385:THR:OG1	2.12	0.50
1:A:958:LEU:HB2	1:A:969:VAL:HG23	1.92	0.50
1:A:466:LYS:O	1:A:467:ALA:HB3	2.12	0.49
1:A:547:GLU:HG3	1:A:860:TRP:CE2	2.47	0.49
1:A:329:GLN:HA	1:A:329:GLN:OE1	2.11	0.49
1:A:417:LYS:HA	1:A:422:PRO:HB3	1.95	0.49
1:A:859:THR:CG2	1:A:862:SER:H	2.18	0.49
1:A:590:PHE:CE1	1:A:682:SER:HB3	2.47	0.49
1:A:780:LYS:HA	1:A:886:ASN:HD21	1.75	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:651:LYS:HA	1:A:730:THR:HG23	1.94	0.49
1:A:936:ILE:HG12	1:A:956:LEU:HD22	1.95	0.49
1:A:729:VAL:HG11	1:A:757:ARG:NH1	2.27	0.49
1:A:504:GLN:O	1:A:509:LYS:HE3	2.12	0.49
1:A:972:GLN:NE2	1:A:975:THR:N	2.52	0.49
1:A:295:LYS:HB2	1:A:295:LYS:NZ	2.28	0.49
1:A:363:LYS:HE2	3:A:1184:HOH:O	2.13	0.49
1:A:490:ASN:HD21	1:A:535:LEU:CD1	2.25	0.49
1:A:506:THR:O	1:A:509:LYS:HD2	2.13	0.49
1:A:690:PRO:HG3	1:A:860:TRP:NE1	2.28	0.49
1:A:729:VAL:HG11	1:A:757:ARG:HH12	1.77	0.49
1:A:952:ASN:ND2	1:A:953:LYS:HD2	2.28	0.49
1:A:461:PHE:CG	1:A:514:GLU:HG2	2.47	0.49
1:A:210:GLY:HA2	1:A:220:ASN:HB2	1.95	0.48
1:A:256:LEU:O	1:A:259:TRP:HB3	2.12	0.48
1:A:917:GLU:HB3	1:A:924:VAL:HG13	1.95	0.48
1:A:814:LEU:O	1:A:816:GLN:N	2.46	0.48
1:A:708:GLU:HG3	1:A:714:PHE:HE1	1.78	0.48
1:A:406:GLU:OE1	1:A:437:LYS:NZ	2.46	0.48
1:A:591:TYR:OH	1:A:596:ASN:HB2	2.14	0.48
1:A:820:GLN:NE2	1:A:852:GLU:OE1	2.47	0.48
1:A:739:VAL:HG23	1:A:978:LYS:HD2	1.95	0.48
1:A:333:PRO:HA	1:A:338:TYR:CD2	2.49	0.48
1:A:439:ILE:HD13	1:A:439:ILE:N	2.29	0.48
1:A:509:LYS:HD2	1:A:509:LYS:H	1.78	0.48
1:A:921:LYS:HE2	3:A:1301:HOH:O	2.14	0.48
1:A:280:ASN:OD1	1:A:332:ASN:ND2	2.47	0.47
1:A:725:LYS:HD2	1:A:725:LYS:HA	1.64	0.47
1:A:818:SER:HB3	1:A:819:SER:H	1.44	0.47
1:A:771:LYS:HE3	1:A:912:GLU:OE1	2.13	0.47
1:A:379:PRO:HB3	1:A:405:ILE:HG12	1.97	0.47
1:A:504:GLN:HA	1:A:509:LYS:HB3	1.96	0.47
1:A:742:ASN:HD21	1:A:745:PHE:HD1	1.63	0.47
1:A:197:LYS:O	1:A:202:TYR:OH	2.23	0.47
1:A:850:ASP:O	1:A:880:ILE:HA	2.14	0.47
1:A:173:HIS:O	1:A:175:GLN:HG3	2.14	0.47
1:A:225:THR:HG23	1:A:226:THR:N	2.29	0.47
1:A:264:ILE:HB	3:A:1204:HOH:O	2.15	0.47
1:A:631:ASP:O	1:A:632:ARG:HD3	2.14	0.47
1:A:655:ASN:HB2	3:A:1118:HOH:O	2.14	0.47
1:A:656:TYR:CE1	1:A:667:TRP:HA	2.50	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:739:VAL:CG2	1:A:978:LYS:HD2	2.45	0.47
1:A:868:LYS:HA	1:A:868:LYS:HD3	1.66	0.47
1:A:900:ASP:OD1	1:A:902:THR:HB	2.15	0.47
1:A:271:THR:HG22	1:A:277:GLN:HE22	1.80	0.47
1:A:418:THR:HA	3:A:1157:HOH:O	2.14	0.47
1:A:714:PHE:C	1:A:714:PHE:CD2	2.88	0.47
1:A:678:ASN:ND2	1:A:678:ASN:C	2.67	0.47
1:A:887:LYS:HG3	1:A:888:GLY:N	2.29	0.47
1:A:970:TYR:HB3	1:A:979:THR:HB	1.95	0.47
1:A:503:ILE:HG22	1:A:504:GLN:HE21	1.80	0.46
1:A:521:TRP:O	1:A:525:SER:HB2	2.16	0.46
1:A:633:LEU:C	1:A:633:LEU:HD23	2.36	0.46
1:A:264:ILE:HG13	1:A:388:LEU:HD21	1.96	0.46
1:A:230:SER:CA	1:A:237:ILE:HD12	2.45	0.46
1:A:864:ASN:O	1:A:867:SER:HB3	2.16	0.46
1:A:368:SER:O	1:A:369:ALA:O	2.32	0.46
1:A:661:ASP:HB3	1:A:865:ARG:HB2	1.98	0.46
1:A:734:ASP:OD1	1:A:734:ASP:N	2.36	0.46
1:A:826:LYS:CD	1:A:846:ASN:HD21	2.29	0.46
1:A:937:LYS:HE3	1:A:943:SER:HB3	1.98	0.46
1:A:723:LYS:O	1:A:726:THR:N	2.49	0.46
1:A:372:TRP:CD1	1:A:376:ILE:HD12	2.51	0.46
1:A:801:THR:HG21	1:A:834:GLU:H	1.79	0.46
1:A:911:LYS:O	1:A:928:LYS:NZ	2.47	0.46
1:A:648:LEU:CD2	1:A:672:GLY:HA2	2.45	0.45
1:A:941:GLN:N	1:A:952:ASN:O	2.50	0.45
1:A:742:ASN:ND2	1:A:745:PHE:H	2.15	0.45
1:A:754:ASN:HB2	1:A:759:LEU:HB3	1.99	0.45
1:A:949:PHE:HB3	1:A:984:ILE:HB	1.99	0.45
1:A:524:GLN:O	1:A:528:PRO:HG2	2.16	0.45
1:A:552:HIS:O	1:A:556:VAL:HG23	2.16	0.45
1:A:630:MET:HG3	1:A:632:ARG:HG2	1.98	0.45
1:A:570:ASN:HD22	1:A:575:LEU:HD21	1.81	0.45
1:A:250:ASP:OD1	1:A:252:PHE:HB2	2.17	0.45
1:A:475:SER:HB2	1:A:629:SER:CB	2.46	0.45
1:A:693:ASN:C	1:A:693:ASN:ND2	2.66	0.45
1:A:703:LYS:NZ	1:A:758:THR:O	2.49	0.45
1:A:729:VAL:HG22	1:A:730:THR:H	1.81	0.45
1:A:959:VAL:HG22	1:A:968:ASN:HB3	1.99	0.45
1:A:650:SER:C	1:A:652:ARG:H	2.19	0.45
1:A:650:SER:C	1:A:652:ARG:N	2.70	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:972:GLN:HE22	1:A:975:THR:H	1.61	0.45
1:A:479:HIS:HA	3:A:1123:HOH:O	2.16	0.44
1:A:200:TYR:CE1	1:A:237:ILE:HD13	2.53	0.44
1:A:547:GLU:HB2	1:A:860:TRP:CD2	2.52	0.44
1:A:754:ASN:O	1:A:757:ARG:HD3	2.17	0.44
1:A:939:ASP:CG	1:A:940:ASN:H	2.20	0.44
1:A:576:ASP:OD1	1:A:618:LYS:NZ	2.44	0.44
1:A:421:ASN:N	1:A:422:PRO:CD	2.81	0.44
1:A:703:LYS:HZ3	1:A:781:ASN:HD21	1.63	0.44
1:A:869:ASN:ND2	1:A:871:SER:OG	2.50	0.44
1:A:451:GLU:HB2	1:A:508:TYR:CZ	2.52	0.44
1:A:676:ILE:HD13	1:A:676:ILE:HA	1.68	0.44
1:A:686:ASN:CG	1:A:686:ASN:O	2.56	0.44
1:A:773:VAL:HG11	1:A:925:ILE:HD12	1.99	0.44
1:A:719:SER:C	1:A:721:ASP:N	2.71	0.44
1:A:569:SER:OG	1:A:571:GLU:HG3	2.18	0.44
1:A:696:LYS:O	1:A:794:GLN:NE2	2.48	0.44
1:A:723:LYS:O	1:A:724:GLU:C	2.56	0.44
1:A:446:ASP:OD1	1:A:448:THR:HB	2.17	0.44
1:A:612:ASP:OD1	1:A:614:THR:HB	2.17	0.44
1:A:671:ASP:OD2	1:A:702:GLU:OE2	2.36	0.44
1:A:800:LYS:C	1:A:802:PRO:HD3	2.38	0.43
1:A:916:LEU:HB2	1:A:924:VAL:CG2	2.39	0.43
1:A:517:MET:CE	3:A:1240:HOH:O	2.65	0.43
1:A:916:LEU:HD13	1:A:924:VAL:HG23	2.01	0.43
1:A:499:LEU:C	1:A:503:ILE:HD12	2.38	0.43
1:A:509:LYS:H	1:A:509:LYS:CD	2.32	0.43
1:A:937:LYS:HB3	1:A:954:ALA:HA	2.00	0.43
1:A:267:TYR:CE1	1:A:268:VAL:HG13	2.54	0.43
1:A:330:ILE:HG13	1:A:337:ILE:HD12	2.01	0.43
1:A:593:VAL:HG13	1:A:594:PHE:N	2.34	0.43
1:A:865:ARG:HA	1:A:865:ARG:HD3	1.59	0.43
1:A:931:GLN:OE1	1:A:961:LYS:HG2	2.19	0.43
1:A:832:SER:HB3	1:A:837:ARG:HB2	2.00	0.43
1:A:204:LEU:HG	1:A:212:ILE:HD12	1.99	0.42
1:A:780:LYS:HA	1:A:886:ASN:ND2	2.34	0.42
1:A:808:ASN:HD21	1:A:827:SER:H	1.64	0.42
1:A:545:SER:HB2	1:A:863:ILE:HD12	2.01	0.42
1:A:780:LYS:H	1:A:780:LYS:HG2	1.71	0.42
1:A:855:GLU:HA	1:A:876:PRO:HA	2.01	0.42
1:A:826:LYS:CG	1:A:846:ASN:HD21	2.32	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:762:GLN:HE21	1:A:762:GLN:HB2	1.60	0.42
1:A:773:VAL:HG11	1:A:925:ILE:CD1	2.50	0.42
1:A:814:LEU:HD21	1:A:820:GLN:OE1	2.20	0.42
1:A:247:SER:OG	1:A:249:GLU:HB2	2.19	0.42
1:A:650:SER:HB3	1:A:736:VAL:HB	2.00	0.42
1:A:783:ASN:CG	1:A:785:ILE:HG22	2.40	0.42
1:A:828:VAL:HG23	1:A:843:PHE:HE1	1.83	0.42
1:A:951:MET:HG2	1:A:957:TYR:CE2	2.54	0.42
1:A:620:LEU:HD13	1:A:636:TYR:OH	2.20	0.42
1:A:348:LYS:HE3	1:A:393:PHE:CD2	2.55	0.42
1:A:683:HIS:HE1	1:A:796:LYS:N	2.07	0.42
1:A:475:SER:OG	1:A:627:PHE:HB3	2.19	0.42
1:A:646:LEU:HD23	1:A:646:LEU:HA	1.82	0.42
1:A:711:THR:HG21	1:A:865:ARG:NH1	2.35	0.42
1:A:175:GLN:HB3	1:A:176:PRO:HD2	2.02	0.42
1:A:386:LEU:O	1:A:390:ASN:HB3	2.20	0.42
1:A:715:MET:HG2	1:A:726:THR:HG21	2.02	0.42
1:A:906:LYS:O	1:A:910:SER:HB3	2.20	0.42
1:A:620:LEU:H	1:A:620:LEU:HG	1.65	0.42
1:A:944:LEU:HD22	1:A:944:LEU:HA	1.78	0.42
1:A:860:TRP:O	1:A:863:ILE:HG13	2.20	0.41
1:A:416:ARG:HG3	1:A:419:LEU:HD23	2.02	0.41
1:A:416:ARG:NH1	2:C:1:NAG:H3	2.35	0.41
1:A:499:LEU:HB3	1:A:503:ILE:HD12	2.01	0.41
1:A:774:PHE:O	1:A:892:GLY:HA2	2.19	0.41
1:A:776:GLY:HA3	1:A:891:TYR:CE2	2.55	0.41
1:A:972:GLN:HE22	1:A:974:GLN:CA	2.33	0.41
1:A:419:LEU:N	1:A:419:LEU:HD13	2.35	0.41
1:A:972:GLN:HA	1:A:973:PRO:HD2	1.82	0.41
1:A:367:GLY:O	1:A:368:SER:CB	2.67	0.41
1:A:504:GLN:NE2	1:A:510:ILE:HG23	2.36	0.41
1:A:781:ASN:C	1:A:781:ASN:ND2	2.73	0.41
1:A:807:VAL:HG21	1:A:812:ILE:HG21	2.01	0.41
1:A:819:SER:C	1:A:820:GLN:HG2	2.41	0.41
1:A:952:ASN:HD21	1:A:953:LYS:HD2	1.84	0.41
1:A:204:LEU:HD22	1:A:225:THR:HG21	2.02	0.41
1:A:538:MET:CE	1:A:632:ARG:HB3	2.50	0.41
1:A:679:SER:OG	1:A:837:ARG:NE	2.48	0.41
1:A:754:ASN:HB2	1:A:759:LEU:N	2.36	0.41
1:A:755:TRP:CG	1:A:756:ASP:N	2.89	0.41
1:A:758:THR:HB	1:A:783:ASN:ND2	2.35	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:759:LEU:HD13	1:A:788:VAL:HG21	2.03	0.41
1:A:959:VAL:HG22	1:A:968:ASN:CB	2.50	0.41
1:A:341:GLU:O	1:A:345:ARG:HG3	2.21	0.41
1:A:481:ASN:HB2	1:A:653:THR:HA	2.02	0.41
1:A:707:ARG:HH22	1:A:727:GLY:HA3	1.85	0.41
1:A:937:LYS:HE3	1:A:943:SER:CB	2.51	0.41
1:A:484:TYR:CZ	1:A:541:GLY:HA3	2.56	0.41
1:A:779:ILE:O	1:A:889:ASP:HB2	2.21	0.41
1:A:826:LYS:CG	1:A:846:ASN:ND2	2.84	0.41
1:A:329:GLN:HB2	1:A:337:ILE:HD11	2.03	0.40
1:A:967:GLN:HA	1:A:981:GLN:OE1	2.21	0.40
1:A:416:ARG:CG	1:A:419:LEU:HD23	2.51	0.40
1:A:537:ASP:O	1:A:539:SER:N	2.55	0.40
1:A:718:HIS:CD2	1:A:725:LYS:HG2	2.56	0.40
1:A:861:ASN:HA	1:A:864:ASN:O	2.22	0.40
1:A:177:VAL:HA	3:A:1191:HOH:O	2.21	0.40
1:A:484:TYR:CD1	1:A:487:ALA:HB3	2.55	0.40
1:A:962:VAL:HG13	1:A:962:VAL:O	2.22	0.40
1:A:173:HIS:O	1:A:174:PRO:C	2.58	0.40
1:A:729:VAL:HG21	1:A:757:ARG:NH2	2.36	0.40
1:A:972:GLN:HE22	1:A:974:GLN:H	1.67	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:171:SER:N	1:A:171:SER:N[3_655]	2.07	0.13

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	812/814 (100%)	739 (91%)	59 (7%)	14 (2%)	9 6

All (14) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	818	SER
1	A	942	GLU
1	A	367	GLY
1	A	369	ALA
1	A	713	GLU
1	A	717	LYS
1	A	939	ASP
1	A	209	LEU
1	A	754	ASN
1	A	769	ASN
1	A	467	ALA
1	A	538	MET
1	A	720	LYS
1	A	368	SER

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	729/729 (100%)	617 (85%)	112 (15%)	2 2

All (112) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	171	SER
1	A	180	GLN
1	A	183	LYS
1	A	191	LYS
1	A	201	GLN
1	A	227	VAL
1	A	232	LYS

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Mol	Chain	Res	Type
1	A	243	SER
1	A	249	GLU
1	A	267	TYR
1	A	271	THR
1	A	274	SER
1	A	277	GLN
1	A	291	ILE
1	A	295	LYS
1	A	298	SER
1	A	305	LYS
1	A	342	LYS
1	A	351	LEU
1	A	363	LYS
1	A	381	SER
1	A	390	ASN
1	A	391	ASN
1	A	399	LYS
1	A	419	LEU
1	A	424	LYS
1	A	447	ASN
1	A	452	LYS
1	A	458	LYS
1	A	484	TYR
1	A	500	LEU
1	A	507	ASP
1	A	509	LYS
1	A	513	GLN
1	A	515	LEU
1	A	535	LEU
1	A	538	MET
1	A	546	ARG
1	A	559	LEU
1	A	569	SER
1	A	587	SER
1	A	601	SER
1	A	614	THR
1	A	618	LYS
1	A	620	LEU
1	A	623	ASN
1	A	629	SER
1	A	639	LYS
1	A	647	SER

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Mol	Chain	Res	Type
1	A	651	LYS
1	A	654	LEU
1	A	659	MET
1	A	663	ASN
1	A	676	ILE
1	A	678	ASN
1	A	693	ASN
1	A	697	MET
1	A	706	LYS
1	A	713	GLU
1	A	716	SER
1	A	720	LYS
1	A	723	LYS
1	A	725	LYS
1	A	730	THR
1	A	734	ASP
1	A	742	ASN
1	A	771	LYS
1	A	778	ASN
1	A	780	LYS
1	A	781	ASN
1	A	782	THR
1	A	785	ILE
1	A	810	LYS
1	A	813	ASP
1	A	814	LEU
1	A	815	LYS
1	A	818	SER
1	A	819	SER
1	A	820	GLN
1	A	827	SER
1	A	841	TYR
1	A	845	LYS
1	A	849	ILE
1	A	853	ARG
1	A	854	LYS
1	A	859	THR
1	A	862	SER
1	A	863	ILE
1	A	864	ASN
1	A	865	ARG
1	A	868	LYS

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Mol	Chain	Res	Type
1	A	870	THR
1	A	872	ILE
1	A	887	LYS
1	A	906	LYS
1	A	907	LEU
1	A	910	SER
1	A	919	SER
1	A	920	SER
1	A	923	GLN
1	A	924	VAL
1	A	925	ILE
1	A	928	LYS
1	A	942	GLU
1	A	944	LEU
1	A	947	ASN
1	A	965	ASP
1	A	969	VAL
1	A	972	GLN
1	A	976	MET
1	A	981	GLN
1	A	982	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (34) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	201	GLN
1	A	266	ASN
1	A	275	ASN
1	A	277	GLN
1	A	340	ASN
1	A	447	ASN
1	A	504	GLN
1	A	513	GLN
1	A	567	ASN
1	A	570	ASN
1	A	574	ASN
1	A	605	ASN
1	A	660	ASN
1	A	663	ASN
1	A	678	ASN
1	A	683	HIS
1	A	686	ASN

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Mol	Chain	Res	Type
1	A	693	ASN
1	A	742	ASN
1	A	762	GLN
1	A	769	ASN
1	A	778	ASN
1	A	781	ASN
1	A	787	ASN
1	A	808	ASN
1	A	820	GLN
1	A	846	ASN
1	A	864	ASN
1	A	869	ASN
1	A	886	ASN
1	A	923	GLN
1	A	946	ASN
1	A	960	GLN
1	A	972	GLN

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

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	B	1	2	15,15,15	2.34	6 (40%)	21,21,21	1.18	2 (9%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
2	GC4	B	2	2	11,11,12	2.08	4 (36%)	12,15,17	1.48	3 (25%)
2	NAG	C	1	2	15,15,15	1.60	3 (20%)	21,21,21	0.96	1 (4%)
2	GC4	C	2	2	11,11,12	1.76	3 (27%)	12,15,17	1.59	3 (25%)

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	B	1	2	-	3/6/26/26	0/1/1/1
2	GC4	B	2	2	-	0/4/17/20	0/1/1/1
2	NAG	C	1	2	-	0/6/26/26	0/1/1/1
2	GC4	C	2	2	-	2/4/17/20	0/1/1/1

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	1	NAG	C2-N2	5.78	1.55	1.45
2	B	2	GC4	O5-C5	3.72	1.50	1.43
2	B	1	NAG	C7-N2	3.67	1.47	1.34
2	C	2	GC4	O5-C1	3.46	1.49	1.43
2	C	1	NAG	C2-N2	3.42	1.51	1.45
2	B	2	GC4	O5-C1	3.24	1.48	1.43
2	B	2	GC4	O6A-C6	3.18	1.31	1.22
2	C	2	GC4	O6A-C6	2.73	1.30	1.22
2	C	1	NAG	C7-N2	2.73	1.43	1.34
2	C	2	GC4	O5-C5	2.64	1.48	1.43
2	B	1	NAG	O3-C3	2.40	1.48	1.43
2	B	1	NAG	O5-C1	2.27	1.48	1.42
2	B	1	NAG	C1-C2	2.14	1.55	1.52
2	B	1	NAG	O5-C5	2.11	1.49	1.44
2	C	1	NAG	O5-C5	2.08	1.49	1.44
2	B	2	GC4	C4-C5	2.01	1.55	1.52

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	C	2	GC4	O6A-C6-C5	-3.78	113.63	122.57
2	B	2	GC4	O6A-C6-C5	-3.36	114.64	122.57
2	B	1	NAG	O7-C7-C8	-3.06	116.37	122.06

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	C	2	GC4	O6B-C6-O6A	2.94	130.77	124.09
2	B	2	GC4	O6B-C6-O6A	2.84	130.53	124.09
2	C	1	NAG	O7-C7-C8	-2.63	117.18	122.06
2	B	1	NAG	O7-C7-N2	2.27	126.12	121.95
2	C	2	GC4	O5-C5-C4	-2.26	108.52	111.27
2	B	2	GC4	O5-C5-C4	-2.15	108.65	111.27

There are no chirality outliers.

All (5) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	1	NAG	C3-C2-N2-C7
2	B	1	NAG	O5-C5-C6-O6
2	C	2	GC4	O5-C5-C6-O6A
2	C	2	GC4	C4-C5-C6-O6A
2	B	1	NAG	C1-C2-N2-C7

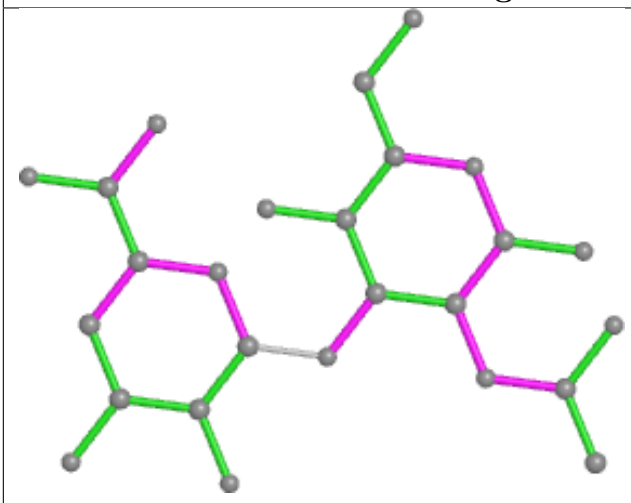
There are no ring outliers.

1 monomer is involved in 3 short contacts:

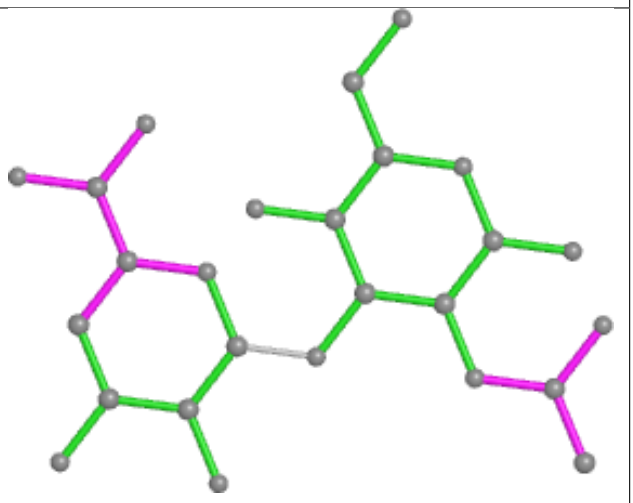
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	C	1	NAG	3	0

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

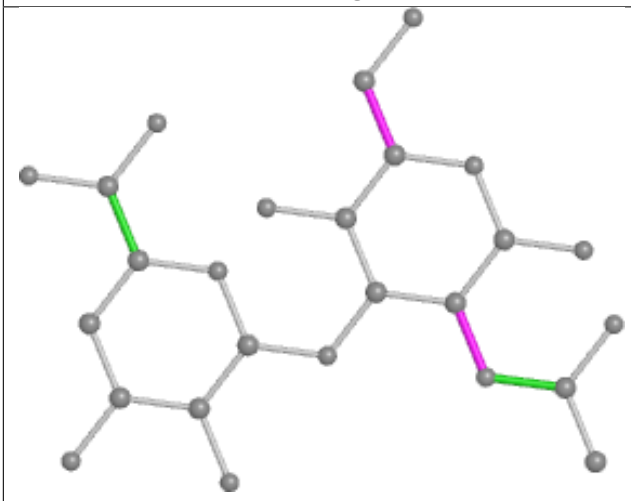
Oligosaccharide Chain B



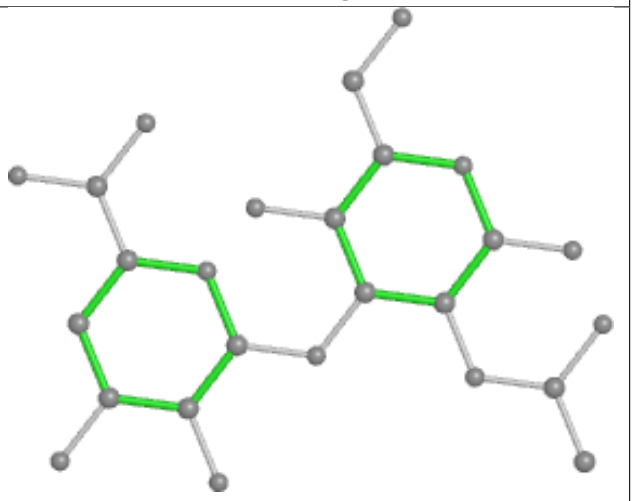
Bond lengths



Bond angles

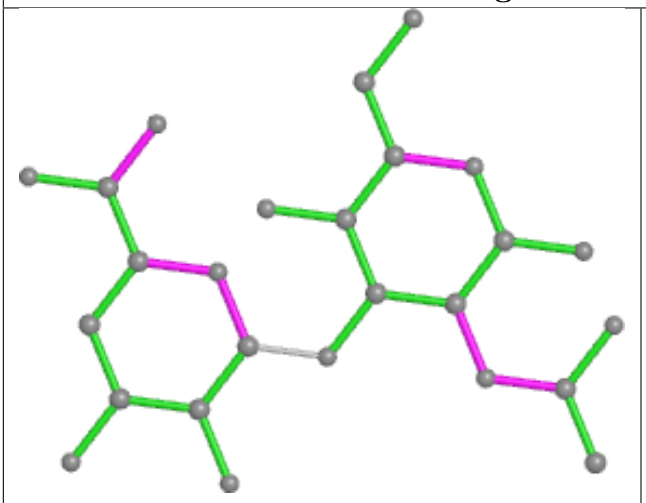


Torsions

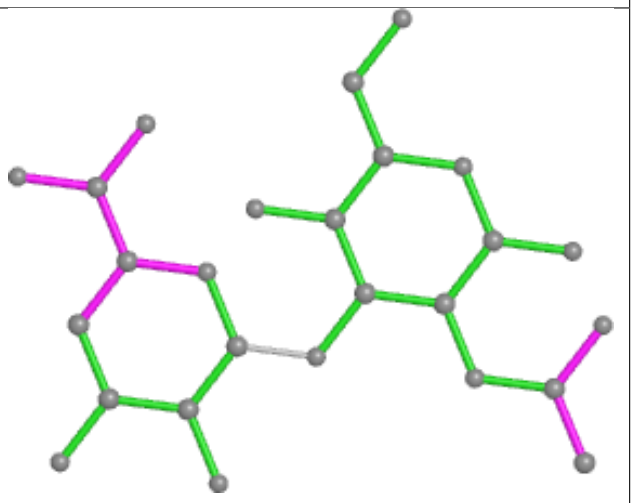


Rings

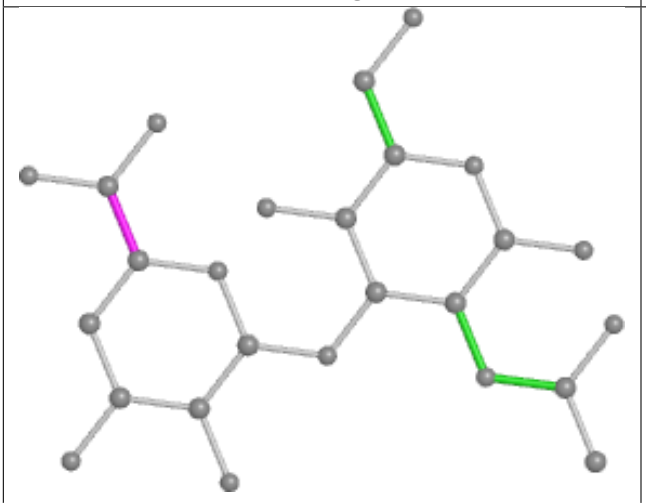
Oligosaccharide Chain C



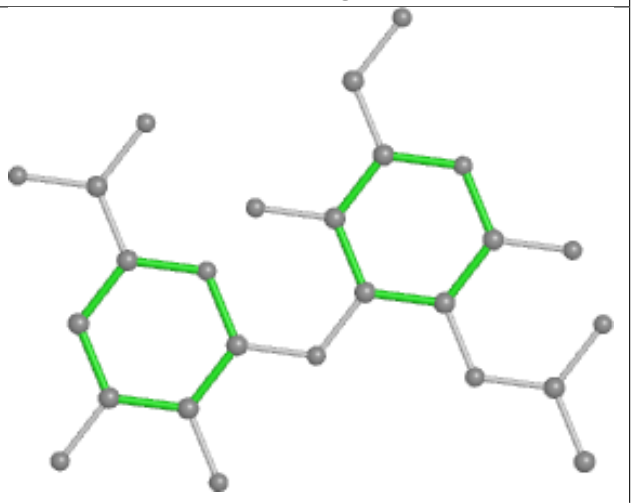
Bond lengths



Bond angles



Torsions



Rings

5.6 Ligand geometry (i)

There are no ligands in this entry.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å^2)	Q<0.9
1	A	814/814 (100%)	-0.15	16 (1%) 65 63	17, 35, 63, 94	0

All (16) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	818	SER	9.5
1	A	817	ALA	9.3
1	A	819	SER	5.7
1	A	816	GLN	4.4
1	A	721	ASP	3.6
1	A	367	GLY	3.6
1	A	722	ALA	3.5
1	A	720	LYS	2.8
1	A	947	ASN	2.8
1	A	718	HIS	2.7
1	A	714	PHE	2.7
1	A	716	SER	2.6
1	A	725	LYS	2.5
1	A	867	SER	2.4
1	A	888	GLY	2.2
1	A	941	GLN	2.2

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

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,

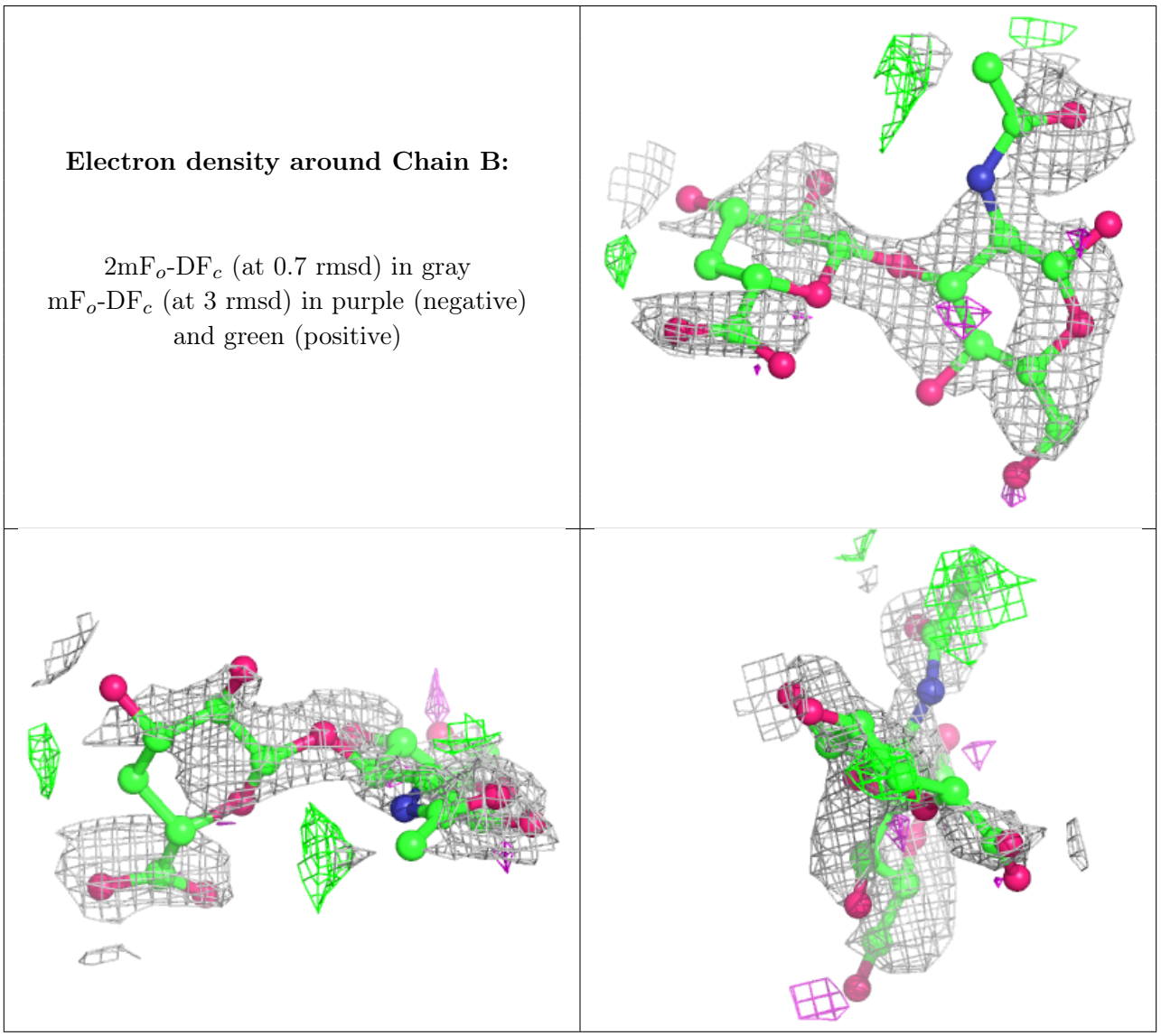
median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	NAG	B	1	15/15	0.67	0.43	61,68,76,77	0
2	GC4	B	2	11/12	0.71	0.47	65,71,74,77	0
2	GC4	C	2	11/12	0.78	0.29	59,64,70,71	0
2	NAG	C	1	15/15	0.83	0.24	59,63,69,69	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.

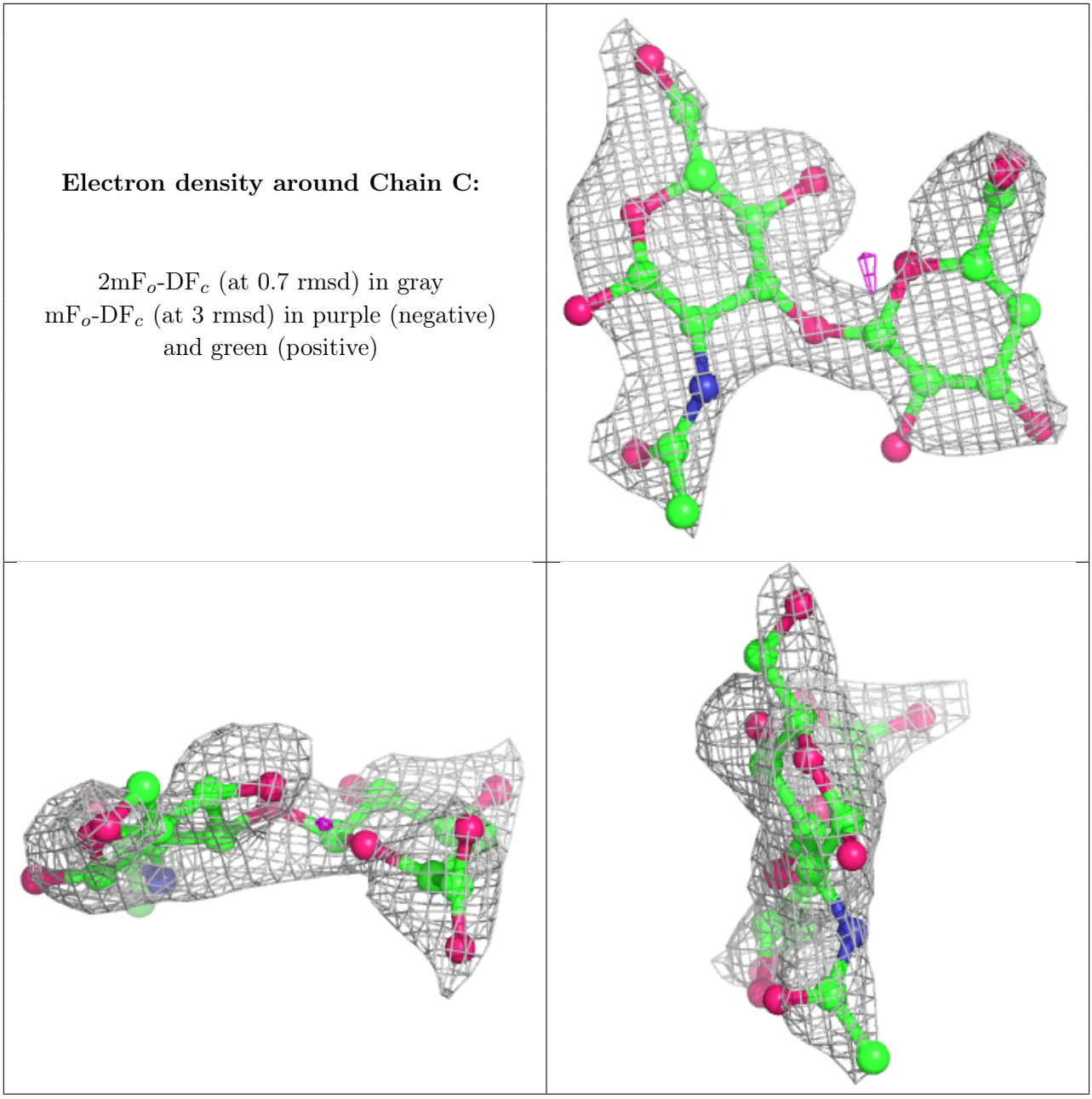
Electron density around Chain B:

$2mF_o$-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 C:

$2mF_o$-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.