



Full wwPDB X-ray Structure Validation Report ⓘ

Nov 3, 2024 – 08:12 PM EST

PDB ID : 1ORV
Title : Crystal Structure of Porcine Dipeptidyl Peptidase IV (CD26)
Authors : Engel, M.; Hoffmann, T.; Wagner, L.; Wermann, M.; Heiser, U.; Kiefersauer, R.; Huber, R.; Bode, W.; Demuth, H.U.; Brandstetter, H.
Deposited on : 2003-03-16
Resolution : 1.80 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 types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4.02b-467
Mogul : 2022.3.0, CSD as543be (2022)
Xtriage (Phenix) : 1.20.1
EDS : 3.0
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4 : 9.0.003 (Gargrove)
Density-Fitness : 1.0.11
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.39

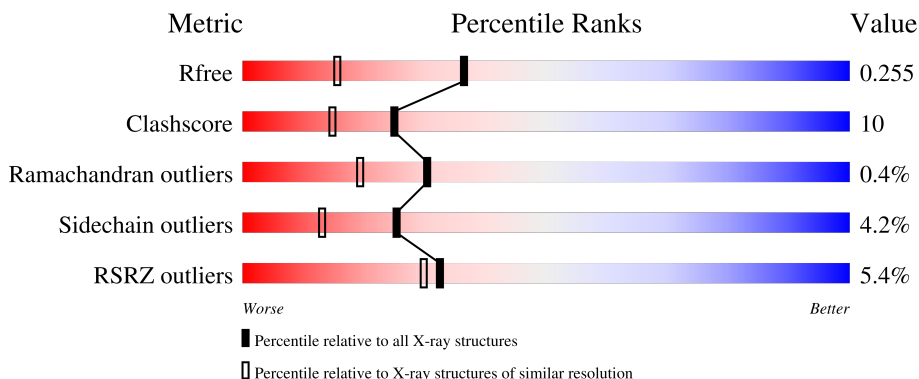
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.80 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	7108 (1.80-1.80)
Clashscore	180529	8162 (1.80-1.80)
Ramachandran outliers	177936	8077 (1.80-1.80)
Sidechain outliers	177891	8076 (1.80-1.80)
RSRZ outliers	164620	7108 (1.80-1.80)

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 $\leq 5\%$. 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	728	
1	B	728	
1	C	728	
1	D	728	
2	E	2	

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Mol	Chain	Length	Quality of chain
2	F	2	 100%
2	H	2	 100%
2	I	2	 50% 50%
2	K	2	 100%
2	L	2	 50% 50%
2	M	2	 50% 50%
3	G	3	 67% 33%
3	J	3	 33% 33% 33%

2 Entry composition [i](#)

There are 6 unique types of molecules in this entry. The entry contains 25836 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 dipeptidyl peptidase IV.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	728	5966	3825	986	1132	23	80	0	0
1	B	728	5966	3825	986	1132	23	42	0	0
1	C	728	5966	3825	986	1132	23	83	0	0
1	D	728	5966	3825	986	1132	23	36	0	0

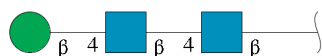
- Molecule 2 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



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
2	H	2	28	16	2	10	0	0	0
2	I	2	28	16	2	10	0	0	0
2	K	2	28	16	2	10	0	0	0
2	L	2	28	16	2	10	0	0	0
2	M	2	28	16	2	10	0	0	0

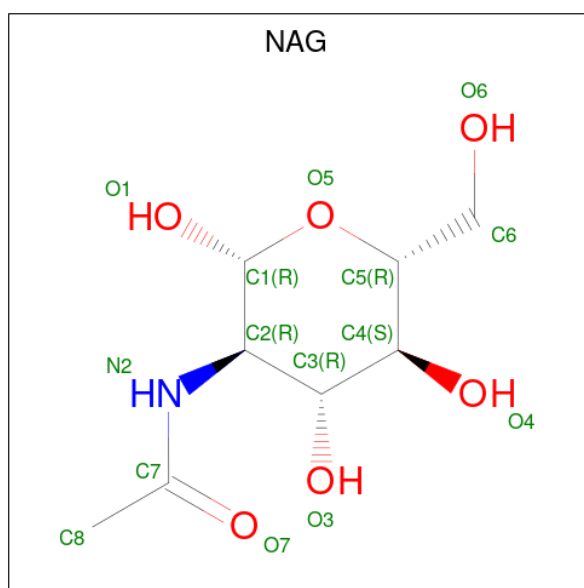
- Molecule 3 is an oligosaccharide called beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-b

eta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
3	G	3	Total	C	N	O	0	0	0
			39	22	2	15			
3	J	3	Total	C	N	O	0	0	0
			39	22	2	15			

- Molecule 4 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).



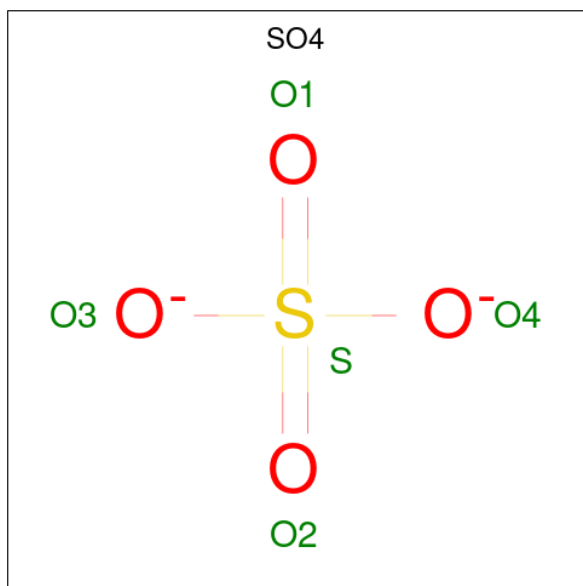
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
4	A	1	Total	C	N	O	0	0
			14	8	1	5		
4	A	1	Total	C	N	O	0	0
			14	8	1	5		
4	A	1	Total	C	N	O	3	0
			14	8	1	5		
4	A	1	Total	C	N	O	0	0
			14	8	1	5		
4	B	1	Total	C	N	O	0	0
			14	8	1	5		
4	B	1	Total	C	N	O	0	0
			14	8	1	5		

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

- Molecule 5 is SULFATE ION (three-letter code: SO4) (formula: O₄S).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total	O	S	0	0
			5	4	1		
5	B	1	Total	O	S	0	0
			5	4	1		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	C	1	Total	O	S	0	0
			5	4	1		
5	D	1	Total	O	S	0	0
			5	4	1		

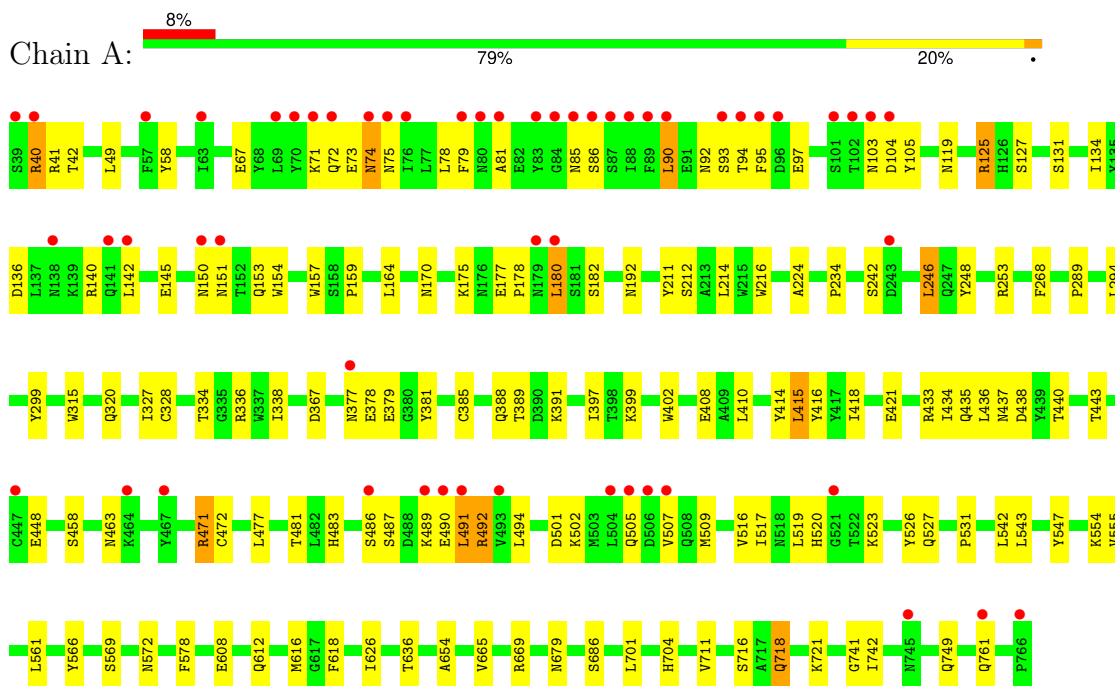
- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	334	Total	O	0	0
			334	334		
6	B	431	Total	O	0	0
			431	431		
6	C	378	Total	O	0	0
			378	378		
6	D	325	Total	O	0	0
			325	325		

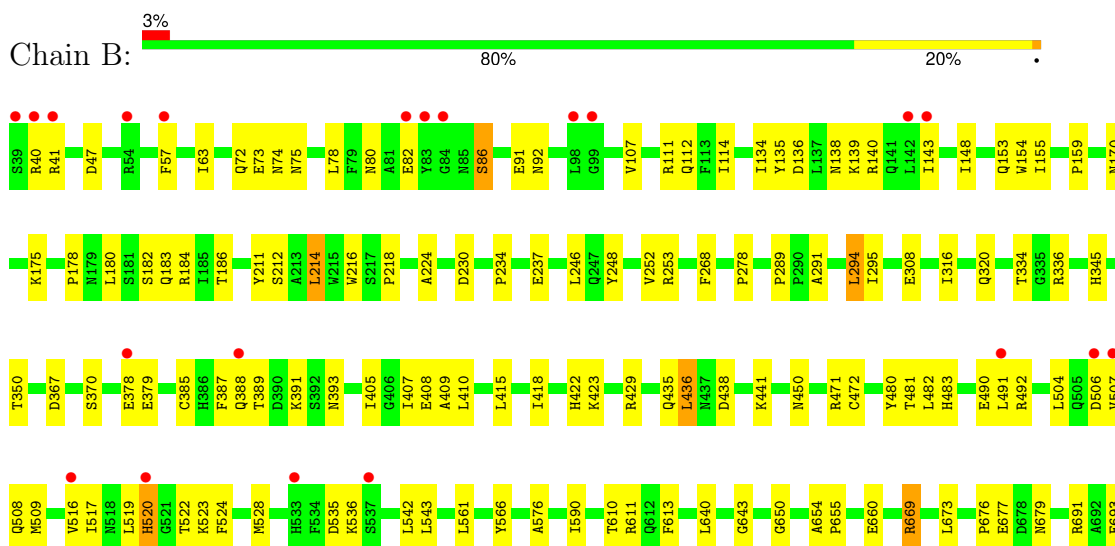
3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: dipeptidyl peptidase IV

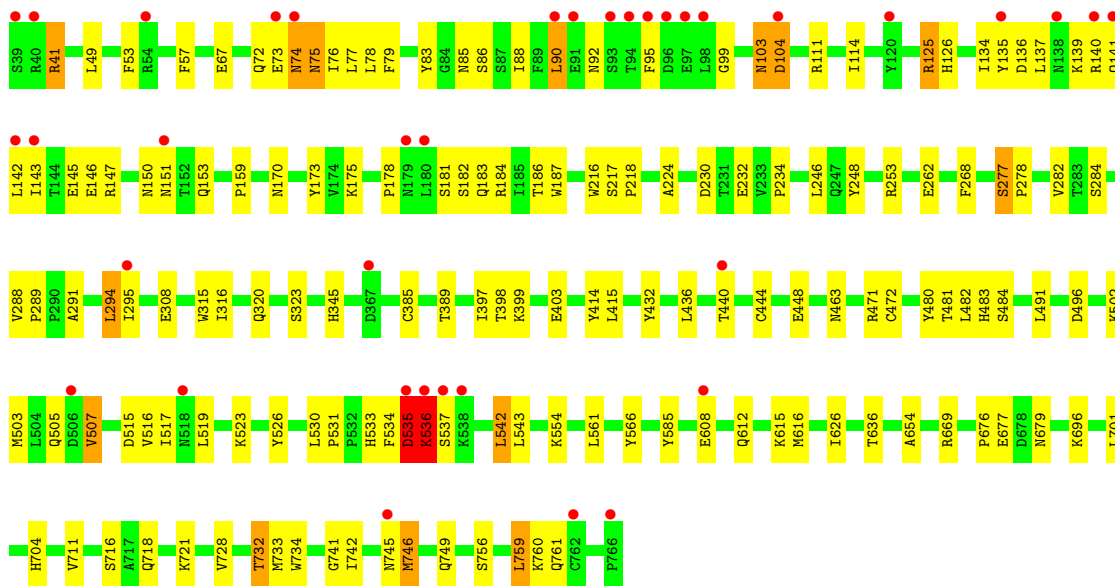
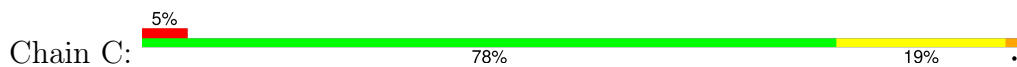


- Molecule 1: dipeptidyl peptidase IV

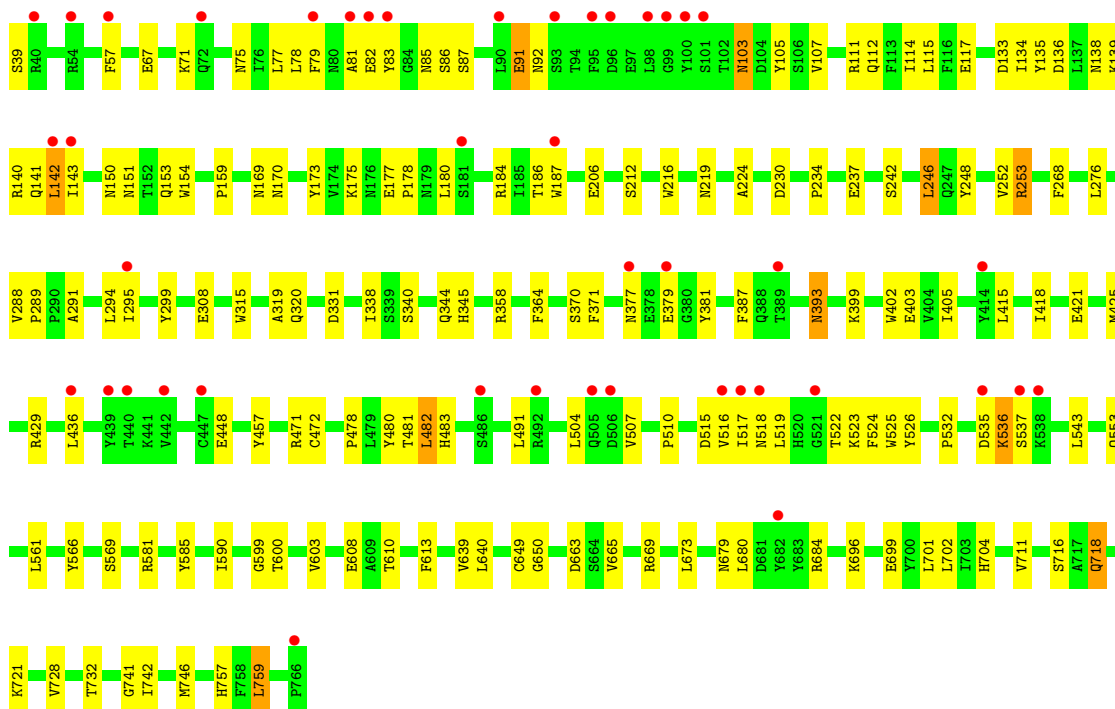
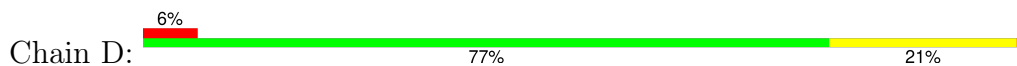




• Molecule 1: dipeptidyl peptidase IV



• Molecule 1: dipeptidyl peptidase IV

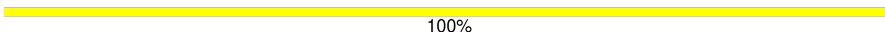


- Molecule 2: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain E:  50% 50%

MAG1
MAG2

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

Chain F:  100%

MAG1
MAG2

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

Chain H:  100%

MAG1
MAG2

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

Chain I:  50% 50%

MAG1
MAG2

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

Chain K:  100%

MAG1
MAG2

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

Chain L:  50% 50%

MAG1
MAG2

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

Chain M:  50% 50%



MAG1
MAG2

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

Chain G:  67% 33%



MAG1
MAG2
BWA3

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

Chain J:  33% 33% 33%



MAG1
MAG2
BWA3

4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	62.00Å 118.18Å 133.59Å 112.76° 94.93° 91.14°	Depositor
Resolution (Å)	19.25 – 1.80 19.25 – 1.80	Depositor EDS
% Data completeness (in resolution range)	96.2 (19.25-1.80) 96.1 (19.25-1.80)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.29 (at 1.78Å)	Xtrriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.217 , 0.252 0.222 , 0.255	Depositor DCC
R_{free} test set	15446 reflections (4.98%)	wwPDB-VP
Wilson B-factor (Å ²)	28.4	Xtrriage
Anisotropy	0.356	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.40 , 45.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.51$, $\langle L^2 \rangle = 0.35$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	25836	wwPDB-VP
Average B, all atoms (Å ²)	36.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.58% 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: SO4, NAG, BMA

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	0.47	0/6141	0.71	1/8353 (0.0%)
1	B	0.51	0/6141	0.73	2/8353 (0.0%)
1	C	0.49	0/6141	0.73	3/8353 (0.0%)
1	D	0.44	0/6141	0.69	1/8353 (0.0%)
All	All	0.48	0/24564	0.71	7/33412 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	B	0	2

There are no bond length outliers.

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
1	C	103	ASN	N-CA-C	7.01	129.93	111.00
1	C	104	ASP	N-CA-C	-6.74	92.79	111.00
1	B	669	ARG	NE-CZ-NH2	-6.71	116.95	120.30
1	D	319	ALA	N-CA-C	-5.55	96.03	111.00
1	A	214	LEU	CA-CB-CG	5.21	127.28	115.30
1	B	214	LEU	CA-CB-CG	5.11	127.04	115.30
1	C	542	LEU	CA-CB-CG	5.08	126.97	115.30

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	211	TYR	Sidechain
1	B	700	TYR	Sidechain

5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	5966	0	5663	102	0
1	B	5966	0	5663	105	0
1	C	5966	0	5662	125	0
1	D	5966	0	5662	129	0
2	E	28	0	25	0	0
2	F	28	0	25	1	0
2	H	28	0	25	0	0
2	I	28	0	25	0	0
2	K	28	0	25	0	0
2	L	28	0	25	0	0
2	M	28	0	25	0	0
3	G	39	0	34	1	0
3	J	39	0	34	1	0
4	A	56	0	52	2	0
4	B	56	0	52	2	0
4	C	70	0	65	1	0
4	D	28	0	26	1	0
5	A	5	0	0	0	0
5	B	5	0	0	0	0
5	C	5	0	0	0	0
5	D	5	0	0	0	0
6	A	334	0	0	5	0
6	B	431	0	0	11	0
6	C	378	0	0	8	0
6	D	325	0	0	10	0
All	All	25836	0	23088	449	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 10.

All (449) 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:C:516:VAL:HG11	1:C:523:LYS:HB2	1.40	1.01
1:C:535:ASP:C	1:C:536:LYS:HD3	1.83	0.97
1:C:536:LYS:HG2	1:C:537:SER:H	1.31	0.95
1:A:492:ARG:HH21	1:A:492:ARG:HB3	1.36	0.87
1:C:746:MET:H	1:C:746:MET:CE	1.89	0.86
1:D:75:ASN:ND2	1:D:92:ASN:H	1.78	0.81
1:D:320:GLN:OE1	1:D:669:ARG:HD3	1.78	0.81
1:D:746:MET:HE3	6:D:1816:HOH:O	1.81	0.80
1:B:378:GLU:CD	1:B:378:GLU:H	1.83	0.80
1:D:153:GLN:HE22	1:D:170:ASN:ND2	1.80	0.79
1:A:253:ARG:NH2	1:B:253:ARG:HH21	1.81	0.78
1:B:407:ILE:HG23	1:B:415:LEU:HD21	1.64	0.78
1:C:253:ARG:HH21	1:D:253:ARG:HH22	1.33	0.77
1:B:693:GLU:OE1	1:B:696:LYS:HE3	1.84	0.77
1:D:680:LEU:HD11	1:D:684:ARG:HE	1.49	0.77
1:D:291:ALA:O	1:D:295:ILE:HG13	1.85	0.77
1:B:320:GLN:OE1	1:B:669:ARG:HD3	1.83	0.76
1:C:516:VAL:CG1	1:C:523:LYS:HB2	2.15	0.75
1:B:75:ASN:ND2	1:B:92:ASN:H	1.85	0.75
1:A:492:ARG:HB3	1:A:492:ARG:NH2	2.02	0.74
1:A:75:ASN:HD22	1:A:92:ASN:ND2	1.85	0.73
1:B:490:GLU:O	1:B:492:ARG:N	2.21	0.73
1:D:184:ARG:HD3	1:D:186:THR:O	1.89	0.72
1:A:481:THR:OG1	1:A:483:HIS:HE1	1.72	0.72
1:B:516:VAL:HG13	1:B:524:PHE:O	1.90	0.72
1:C:153:GLN:HE22	1:C:170:ASN:ND2	1.87	0.72
1:A:320:GLN:OE1	1:A:669:ARG:HD3	1.89	0.71
1:A:153:GLN:HE22	1:A:170:ASN:ND2	1.88	0.71
1:B:111:ARG:HD2	6:B:1806:HOH:O	1.89	0.71
1:D:696:LYS:HG3	1:D:728:VAL:HG22	1.71	0.71
1:C:746:MET:H	1:C:746:MET:HE3	1.54	0.71
1:C:184:ARG:HD3	1:C:186:THR:O	1.90	0.71
1:C:139:LYS:HD3	1:C:141:GLN:NE2	2.06	0.71
1:A:388:GLN:HB2	1:A:391:LYS:HB2	1.72	0.70
1:A:507:VAL:HG13	1:A:509:MET:HG2	1.73	0.70
1:C:519:LEU:HD22	1:C:608:GLU:OE1	1.92	0.70
1:B:153:GLN:HE22	1:B:170:ASN:ND2	1.88	0.69
1:C:733:MET:HA	1:D:732:THR:CG2	2.23	0.69
1:D:536:LYS:O	1:D:537:SER:HB2	1.91	0.69
1:D:83:TYR:HB3	1:D:85:ASN:OD1	1.93	0.68
1:D:704:HIS:HD2	1:D:716:SER:OG	1.77	0.68
1:C:75:ASN:HD22	1:C:92:ASN:HB2	1.58	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:75:ASN:HB3	1:A:92:ASN:N	2.08	0.68
1:C:440:THR:HG21	6:C:1719:HOH:O	1.95	0.67
1:C:734:TRP:CZ3	1:D:732:THR:OG1	2.48	0.66
1:D:136:ASP:CG	1:D:139:LYS:HG2	2.16	0.66
1:D:87:SER:HB3	4:D:767(A):NAG:O6	1.95	0.66
1:D:481:THR:OG1	1:D:483:HIS:HE1	1.79	0.66
1:B:490:GLU:O	1:B:490:GLU:HG2	1.95	0.66
1:B:704:HIS:HD2	1:B:716:SER:OG	1.78	0.66
1:B:640:LEU:HD11	1:B:650:GLY:HA3	1.79	0.65
1:B:691:ARG:HG3	1:B:691:ARG:HH11	1.62	0.64
1:C:90:LEU:HD13	1:C:90:LEU:O	1.98	0.64
1:D:288:VAL:CG1	1:D:289:PRO:HD2	2.28	0.64
1:A:418:ILE:HD12	6:A:1739:HOH:O	1.98	0.63
1:D:640:LEU:HD11	1:D:650:GLY:HA3	1.80	0.63
1:C:704:HIS:HD2	1:C:716:SER:OG	1.80	0.63
1:A:433:ARG:NH1	1:A:443:THR:HG21	2.14	0.63
1:C:612:GLN:O	1:C:615:LYS:HG2	1.98	0.63
1:C:536:LYS:HG2	1:C:537:SER:N	2.10	0.62
1:D:516:VAL:HG11	1:D:523:LYS:HB2	1.80	0.62
1:A:408:GLU:HG2	6:A:1624:HOH:O	1.98	0.62
1:C:253:ARG:HH21	1:D:253:ARG:NH2	1.97	0.62
1:A:93:SER:C	1:A:95:PHE:H	2.03	0.61
1:C:76:ILE:HD12	1:C:90:LEU:HD11	1.82	0.61
1:C:481:THR:OG1	1:C:483:HIS:HE1	1.83	0.61
1:B:516:VAL:HG11	1:B:523:LYS:HB2	1.82	0.61
1:D:153:GLN:HE22	1:D:170:ASN:HD22	1.45	0.61
1:B:516:VAL:HG12	1:B:517:ILE:N	2.16	0.61
1:B:134:ILE:HG21	1:B:178:PRO:HB3	1.80	0.61
1:A:153:GLN:HE22	1:A:170:ASN:HD22	1.47	0.60
1:C:218:PRO:HD2	1:C:308:GLU:OE2	2.01	0.60
1:A:458:SER:OG	1:A:471:ARG:HD3	2.02	0.60
1:B:175:LYS:HZ1	1:B:178:PRO:HA	1.67	0.60
1:C:718:GLN:HE22	1:C:721:LYS:NZ	1.99	0.60
1:C:733:MET:HA	1:D:732:THR:HG22	1.84	0.60
1:D:111:ARG:HD2	6:D:1812:HOH:O	2.00	0.60
1:D:482:LEU:HD22	1:D:491:LEU:HD12	1.84	0.60
1:D:377:ASN:HB3	1:D:379:GLU:H	1.66	0.59
1:C:76:ILE:HB	1:C:90:LEU:CD1	2.32	0.59
6:C:1685:HOH:O	1:D:746:MET:HE1	2.02	0.59
1:B:218:PRO:HD2	1:B:308:GLU:OE2	2.02	0.59
1:B:75:ASN:HD22	1:B:92:ASN:H	1.51	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:248:TYR:CZ	1:B:234:PRO:HB2	2.37	0.59
1:C:173:TYR:CE2	1:C:184:ARG:HG3	2.38	0.59
1:A:410:LEU:HD13	1:A:415:LEU:HD23	1.84	0.59
1:A:516:VAL:HG11	1:A:523:LYS:HB2	1.85	0.58
1:C:291:ALA:O	1:C:295:ILE:HG13	2.03	0.58
1:D:510:PRO:HD3	1:D:569:SER:HB2	1.84	0.58
1:D:504:LEU:HA	1:D:507:VAL:HG12	1.85	0.58
1:D:746:MET:CE	6:D:1816:HOH:O	2.46	0.58
1:B:522:THR:HG21	1:B:590:ILE:HD11	1.85	0.58
1:B:136:ASP:CG	1:B:139:LYS:HG2	2.24	0.58
1:C:414:TYR:HA	1:C:436:LEU:HD13	1.85	0.58
1:B:676:PRO:HG2	1:B:677:GLU:OE2	2.03	0.58
1:B:334:THR:OG1	1:B:336:ARG:HG2	2.04	0.58
1:B:418:ILE:HD12	6:B:1782:HOH:O	2.04	0.58
1:C:536:LYS:HD3	1:C:536:LYS:N	2.19	0.57
1:C:502:LYS:O	1:C:505:GLN:HG2	2.05	0.57
1:A:519:LEU:HD22	1:A:608:GLU:OE2	2.03	0.57
1:A:502:LYS:O	1:A:505:GLN:HG2	2.05	0.57
1:C:536:LYS:CG	1:C:537:SER:H	2.06	0.57
1:D:718:GLN:HE22	1:D:721:LYS:NZ	2.02	0.56
1:A:58:TYR:CD2	1:A:494:LEU:HB3	2.40	0.56
1:B:80:ASN:OD1	1:B:82:GLU:HB2	2.05	0.56
1:B:408:GLU:HG2	6:B:1696:HOH:O	2.05	0.56
1:A:704:HIS:HD2	1:A:716:SER:OG	1.88	0.56
1:B:704:HIS:HE1	1:B:711:VAL:O	1.89	0.56
1:D:522:THR:HB	1:D:524:PHE:CE1	2.41	0.56
1:B:175:LYS:HB3	1:B:175:LYS:HZ2	1.71	0.56
1:A:72:GLN:HG2	1:A:73:GLU:HG3	1.87	0.55
1:A:481:THR:OG1	1:A:483:HIS:CE1	2.58	0.55
1:B:291:ALA:O	1:B:295:ILE:HG23	2.07	0.55
1:C:74:ASN:HB2	1:C:92:ASN:ND2	2.22	0.55
1:A:41:ARG:HB2	6:A:1780:HOH:O	2.05	0.55
1:C:320:GLN:OE1	1:C:669:ARG:HD3	2.06	0.55
1:C:234:PRO:HB2	1:D:248:TYR:CZ	2.41	0.55
1:B:57:PHE:HA	1:B:480:TYR:CE1	2.42	0.55
1:B:175:LYS:NZ	1:B:178:PRO:HA	2.21	0.55
1:C:288:VAL:HG13	1:C:289:PRO:HD2	1.89	0.55
1:A:92:ASN:C	1:A:94:THR:H	2.09	0.55
1:C:676:PRO:HG2	1:C:677:GLU:OE2	2.07	0.55
1:A:93:SER:C	1:A:95:PHE:N	2.58	0.55
1:A:377:ASN:HB2	1:A:381:TYR:O	2.07	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:350:THR:HG22	4:B:773(A):NAG:H81	1.89	0.55
1:C:483:HIS:HA	1:C:491:LEU:HD23	1.89	0.55
1:A:159:PRO:HD3	1:A:216:TRP:CB	2.37	0.55
1:D:134:ILE:HG21	1:D:178:PRO:HB3	1.89	0.54
1:B:507:VAL:HG13	1:B:509:MET:HG2	1.90	0.54
1:B:481:THR:OG1	1:B:483:HIS:HE1	1.89	0.54
1:B:388:GLN:HB3	1:B:391:LYS:HB2	1.89	0.54
1:A:75:ASN:HD22	1:A:92:ASN:HD22	1.55	0.54
1:B:516:VAL:HG11	1:B:523:LYS:HD2	1.89	0.54
1:D:77:LEU:HB2	1:D:79:PHE:HE2	1.73	0.54
1:D:393:ASN:H	1:D:393:ASN:HD22	1.53	0.54
1:A:492:ARG:HH21	1:A:492:ARG:CB	2.15	0.54
1:C:535:ASP:CA	1:C:536:LYS:HD3	2.38	0.54
1:D:518:ASN:O	1:D:519:LEU:HD23	2.08	0.53
1:B:153:GLN:HE22	1:B:170:ASN:HD22	1.56	0.53
1:A:75:ASN:ND2	1:A:92:ASN:ND2	2.56	0.53
1:A:75:ASN:ND2	1:A:92:ASN:HD22	2.07	0.53
1:A:299:TYR:CZ	1:A:665:VAL:HG22	2.44	0.53
1:B:409:ALA:O	1:B:415:LEU:HD22	2.09	0.53
1:B:415:LEU:HD13	1:B:415:LEU:C	2.29	0.53
1:A:74:ASN:O	1:A:95:PHE:HE2	1.92	0.53
1:A:334:THR:OG1	1:A:336:ARG:HG3	2.09	0.53
1:A:489:LYS:HG3	1:A:491:LEU:H	1.74	0.53
1:B:718:GLN:HE22	1:B:721:LYS:NZ	2.06	0.53
1:A:289:PRO:HB3	1:A:315:TRP:CD2	2.44	0.52
1:D:532:PRO:HD3	1:D:569:SER:HA	1.91	0.52
1:B:148:ILE:HD13	1:B:155:ILE:CD1	2.39	0.52
1:B:490:GLU:O	1:B:490:GLU:CG	2.56	0.52
1:D:67:GLU:HB3	1:D:78:LEU:HD11	1.90	0.52
1:D:429:ARG:NH2	6:D:1663:HOH:O	2.42	0.52
1:D:553:GLN:NE2	6:D:1663:HOH:O	2.42	0.52
1:C:111:ARG:HD2	6:C:1865:HOH:O	2.09	0.52
1:B:669:ARG:HD2	6:B:1838:HOH:O	2.08	0.52
1:C:704:HIS:HE1	1:C:711:VAL:O	1.93	0.52
1:C:496:ASP:HB2	6:C:1655:HOH:O	2.08	0.52
1:D:288:VAL:HG12	1:D:289:PRO:HD2	1.92	0.52
1:B:41:ARG:NH1	1:B:47:ASP:OD1	2.43	0.51
1:C:153:GLN:HE22	1:C:170:ASN:HD22	1.54	0.51
1:C:484:SER:HB2	1:C:491:LEU:HD21	1.91	0.51
1:D:418:ILE:HD12	6:D:1706:HOH:O	2.10	0.51
1:A:49:LEU:HD22	1:A:749:GLN:HA	1.91	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:184:ARG:HD2	1:C:187:TRP:CE2	2.46	0.51
1:D:482:LEU:HD23	1:D:483:HIS:N	2.26	0.51
1:A:134:ILE:HG21	1:A:178:PRO:HB3	1.92	0.51
1:A:159:PRO:HD3	1:A:216:TRP:HB3	1.92	0.51
1:C:136:ASP:CG	1:C:139:LYS:HG2	2.31	0.51
1:C:484:SER:CB	1:C:491:LEU:HD21	2.40	0.51
1:A:71:LYS:HE3	1:A:105:TYR:CD2	2.45	0.51
1:D:288:VAL:HG13	1:D:289:PRO:HD2	1.92	0.51
1:A:415:LEU:C	1:A:415:LEU:HD13	2.31	0.51
1:D:289:PRO:HB3	1:D:315:TRP:CD2	2.46	0.51
1:D:331:ASP:HB2	1:D:338:ILE:HD12	1.93	0.51
1:D:79:PHE:CD1	1:D:86:SER:HB3	2.46	0.51
1:D:75:ASN:HD22	1:D:92:ASN:H	1.57	0.50
1:D:472:CYS:O	1:D:478:PRO:HA	2.11	0.50
1:B:112:GLN:HB3	1:B:138:ASN:HD21	1.76	0.50
1:D:504:LEU:HA	1:D:507:VAL:CG1	2.41	0.50
1:A:94:THR:HG22	1:A:94:THR:O	2.11	0.50
1:A:175:LYS:HG3	1:A:182:SER:HB3	1.93	0.50
1:A:438:ASP:OD1	1:A:440:THR:HB	2.11	0.50
1:C:142:LEU:C	1:C:142:LEU:HD23	2.32	0.50
1:A:131:SER:OG	1:A:150:ASN:ND2	2.45	0.50
1:B:422:HIS:CD2	1:B:423:LYS:HD3	2.46	0.50
1:B:73:GLU:OE2	1:B:73:GLU:HA	2.10	0.50
1:D:139:LYS:O	1:D:141:GLN:HG3	2.11	0.50
1:D:393:ASN:H	1:D:393:ASN:ND2	2.09	0.50
1:D:680:LEU:HD11	1:D:684:ARG:NE	2.23	0.50
1:B:175:LYS:HB3	1:B:175:LYS:NZ	2.27	0.50
1:A:103:ASN:O	1:A:104:ASP:HB2	2.12	0.49
1:A:741:GLY:O	1:A:742:ILE:C	2.51	0.49
1:D:103:ASN:OD1	1:D:117:GLU:OE2	2.29	0.49
1:D:177:GLU:HB2	1:D:180:LEU:HD23	1.93	0.49
1:B:471:ARG:NH2	6:B:1757:HOH:O	2.44	0.49
1:A:414:TYR:HA	1:A:436:LEU:HD13	1.95	0.49
1:B:370:SER:HB2	1:B:387:PHE:O	2.12	0.49
1:B:214:LEU:HD12	6:B:1630:HOH:O	2.12	0.49
1:B:407:ILE:CG2	1:B:415:LEU:HD21	2.37	0.49
1:C:72:GLN:O	1:C:74:ASN:N	2.46	0.49
1:D:133:ASP:HB3	1:D:142:LEU:HD21	1.94	0.49
1:A:327:ILE:HD13	1:A:389:THR:HG23	1.95	0.49
1:D:718:GLN:HA	1:D:718:GLN:HE21	1.78	0.49
1:B:183:GLN:HE22	1:B:278:PRO:HA	1.78	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:615:LYS:HG2	1:C:616:MET:N	2.28	0.48
1:C:746:MET:H	1:C:746:MET:HE2	1.74	0.48
1:B:63:ILE:HD11	1:B:78:LEU:CD1	2.43	0.48
1:C:397:ILE:HG13	1:C:398:THR:HG23	1.96	0.48
1:D:718:GLN:HE22	1:D:721:LYS:HZ1	1.61	0.48
1:C:253:ARG:NH2	1:D:253:ARG:NH2	2.62	0.48
1:C:463:ASN:N	1:C:463:ASN:HD22	2.12	0.48
1:D:184:ARG:HD2	1:D:187:TRP:CE2	2.48	0.48
1:D:402:TRP:CD2	1:D:421:GLU:HB2	2.49	0.48
1:C:288:VAL:HG11	1:C:294:LEU:HD11	1.96	0.48
1:A:234:PRO:HB2	1:B:248:TYR:CZ	2.49	0.48
1:A:92:ASN:O	1:A:94:THR:N	2.43	0.48
1:C:83:TYR:HB2	1:C:85:ASN:OD1	2.13	0.48
1:D:82:GLU:H	1:D:491:LEU:HD13	1.78	0.48
1:C:135:TYR:HD2	1:C:137:LEU:HD23	1.78	0.48
1:C:146:GLU:OE1	1:C:181:SER:HA	2.13	0.48
1:D:57:PHE:HA	1:D:480:TYR:CE1	2.49	0.48
1:A:547:TYR:HB2	1:A:554:LYS:HD3	1.96	0.47
1:D:340:SER:O	1:D:344:GLN:HG3	2.14	0.47
1:D:159:PRO:HD3	1:D:216:TRP:CB	2.44	0.47
1:C:183:GLN:NE2	1:C:277:SER:C	2.68	0.47
1:D:173:TYR:CE2	1:D:184:ARG:HG3	2.49	0.47
1:D:600:THR:O	1:D:603:VAL:CG1	2.63	0.47
1:C:704:HIS:CD2	1:C:716:SER:OG	2.66	0.47
1:D:81:ALA:O	1:D:82:GLU:HB3	2.13	0.47
1:D:175:LYS:HE3	1:D:180:LEU:O	2.15	0.47
1:A:435:GLN:OE1	1:A:437:ASN:OD1	2.32	0.47
1:C:248:TYR:CZ	1:D:234:PRO:HB2	2.49	0.47
1:A:75:ASN:HB3	1:A:92:ASN:H	1.77	0.47
1:A:150:ASN:O	1:A:151:ASN:HB2	2.15	0.47
1:A:177:GLU:HB2	1:A:180:LEU:HB2	1.97	0.47
1:B:643:GLY:HA2	6:B:1631:HOH:O	2.14	0.47
1:B:438:ASP:OD2	1:B:441:LYS:HE3	2.15	0.46
1:B:184:ARG:HD3	1:B:186:THR:O	2.16	0.46
1:C:403:GLU:OE1	1:C:585:TYR:HA	2.15	0.46
1:C:516:VAL:HG12	1:C:517:ILE:N	2.29	0.46
1:A:140:ARG:HG2	1:A:140:ARG:HH11	1.80	0.46
1:B:482:LEU:O	1:B:490:GLU:O	2.32	0.46
1:B:154:TRP:CE2	1:B:212:SER:HB2	2.51	0.46
1:B:435:GLN:OE1	1:B:441:LYS:HD2	2.16	0.46
1:D:75:ASN:HD22	1:D:91:GLU:HA	1.79	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:242:SER:HB3	1:A:246:LEU:HD12	1.97	0.46
1:D:379:GLU:HG2	1:D:381:TYR:CD1	2.50	0.46
1:A:414:TYR:CA	1:A:436:LEU:HD13	2.45	0.46
1:A:477:LEU:HD12	1:A:501:ASP:HB2	1.98	0.46
1:A:517:ILE:HD11	1:A:578:PHE:CE1	2.50	0.46
1:D:177:GLU:CB	1:D:180:LEU:HD23	2.46	0.46
1:A:78:LEU:O	4:A:767(A):NAG:H81	2.15	0.46
1:A:81:ALA:O	1:A:492:ARG:NH1	2.48	0.46
1:C:57:PHE:HA	1:C:480:TYR:CE1	2.51	0.46
1:C:345:HIS:HE1	1:C:389:THR:O	1.99	0.46
1:D:140:ARG:HG2	1:D:140:ARG:HH11	1.80	0.46
1:D:543:LEU:HD22	1:D:759:LEU:HD11	1.98	0.46
1:B:516:VAL:CG1	1:B:517:ILE:N	2.79	0.46
1:A:224:ALA:HB1	1:A:268:PHE:CZ	2.51	0.46
1:B:86:SER:C	4:B:767(A):NAG:H81	2.36	0.46
1:C:49:LEU:HD22	1:C:749:GLN:HA	1.98	0.46
1:D:425:MET:HG2	1:D:525:TRP:CH2	2.51	0.46
1:D:345:HIS:HD2	6:D:1728:HOH:O	1.98	0.45
1:A:686:SER:HA	2:F:1:NAG:H82	1.98	0.45
1:B:528:MET:HG2	1:B:576:ALA:HB2	1.98	0.45
1:B:136:ASP:O	1:B:140:ARG:HA	2.16	0.45
1:B:741:GLY:O	1:B:742:ILE:C	2.54	0.45
1:C:142:LEU:HD23	1:C:143:ILE:O	2.16	0.45
1:D:77:LEU:HB2	1:D:79:PHE:CE2	2.50	0.45
1:B:660:GLU:CG	6:B:1520:HOH:O	2.64	0.45
1:C:471:ARG:HG2	1:C:480:TYR:CD2	2.52	0.45
1:D:600:THR:O	1:D:603:VAL:HG13	2.16	0.45
1:C:175:LYS:CG	1:C:182:SER:HB3	2.46	0.45
1:C:432:TYR:CE2	1:C:444:CYS:HB2	2.52	0.45
1:D:704:HIS:HE1	1:D:711:VAL:O	2.00	0.45
1:C:41:ARG:HH11	1:C:507:VAL:HG12	1.82	0.45
1:B:704:HIS:CD2	1:B:716:SER:OG	2.65	0.45
1:C:612:GLN:O	1:C:615:LYS:CG	2.64	0.45
1:B:73:GLU:HB3	3:G:1:NAG:H4	1.99	0.45
1:C:150:ASN:O	1:C:151:ASN:HB2	2.18	0.45
1:A:67:GLU:HB3	1:A:78:LEU:HD11	1.99	0.44
1:B:345:HIS:HE1	1:B:389:THR:O	2.00	0.44
1:B:410:LEU:HD13	1:B:415:LEU:HD23	1.99	0.44
1:C:414:TYR:CA	1:C:436:LEU:HD13	2.46	0.44
1:A:136:ASP:O	1:A:140:ARG:HA	2.17	0.44
1:C:554:LYS:HG2	6:C:1747:HOH:O	2.16	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:224:ALA:HB1	1:C:268:PHE:CZ	2.52	0.44
1:D:379:GLU:HG2	1:D:381:TYR:HD1	1.82	0.44
1:C:535:ASP:O	1:C:536:LYS:HB3	2.18	0.44
1:D:159:PRO:HD3	1:D:216:TRP:HB3	2.00	0.44
1:D:206:GLU:OE2	1:D:663:ASP:OD2	2.34	0.44
1:D:224:ALA:HB1	1:D:268:PHE:CZ	2.53	0.44
1:D:603:VAL:HG23	1:D:639:VAL:CG2	2.48	0.44
1:A:85:ASN:ND2	4:A:767(A):NAG:O7	2.51	0.44
1:B:175:LYS:HZ2	1:B:175:LYS:CB	2.31	0.44
1:C:125:ARG:HB3	6:C:1518:HOH:O	2.16	0.44
1:C:626:ILE:HG23	1:C:636:THR:HG23	1.98	0.44
1:D:184:ARG:HH11	1:D:187:TRP:HA	1.82	0.44
1:D:370:SER:HB2	1:D:387:PHE:O	2.18	0.44
1:D:403:GLU:OE1	1:D:585:TYR:HA	2.18	0.44
1:D:415:LEU:C	1:D:415:LEU:HD23	2.38	0.44
1:A:79:PHE:CD1	1:A:86:SER:HB3	2.52	0.44
1:B:691:ARG:HH11	1:B:691:ARG:CG	2.27	0.44
1:C:77:LEU:CD2	1:C:88:ILE:HG12	2.48	0.44
1:C:92:ASN:O	1:C:95:PHE:HD2	2.01	0.44
1:A:718:GLN:HE22	1:A:721:LYS:NZ	2.15	0.44
1:D:114:ILE:CG2	1:D:135:TYR:HB3	2.47	0.44
1:C:76:ILE:HD12	1:C:90:LEU:CD1	2.48	0.44
1:C:90:LEU:C	1:C:90:LEU:HD22	2.38	0.44
1:C:733:MET:HA	1:D:732:THR:HG21	2.00	0.44
1:D:590:ILE:HG12	6:D:1722:HOH:O	2.18	0.44
1:B:159:PRO:HD3	1:B:216:TRP:CB	2.47	0.43
1:C:515:ASP:HB3	1:C:526:TYR:CZ	2.53	0.43
1:B:72:GLN:HG2	1:B:73:GLU:HG2	1.99	0.43
1:C:517:ILE:HG23	1:C:526:TYR:CE2	2.53	0.43
1:C:543:LEU:HD22	1:C:759:LEU:HD11	1.99	0.43
1:D:741:GLY:O	1:D:742:ILE:C	2.57	0.43
1:B:393:ASN:HD22	1:B:393:ASN:H	1.66	0.43
1:B:673:LEU:HD12	1:B:673:LEU:N	2.33	0.43
1:C:67:GLU:HB3	1:C:78:LEU:HD11	2.01	0.43
1:C:140:ARG:HG2	1:C:140:ARG:HH11	1.83	0.43
1:A:92:ASN:O	1:A:93:SER:OG	2.30	0.43
1:A:531:PRO:HB3	1:A:572:ASN:HD22	1.82	0.43
1:C:114:ILE:HG22	1:C:135:TYR:HB3	2.01	0.43
1:C:316:ILE:HG22	1:C:323:SER:HB2	2.00	0.43
3:J:1:NAG:H62	3:J:2:NAG:HN2	1.83	0.43
1:A:125:ARG:HB3	6:A:1550:HOH:O	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:377:ASN:ND2	6:A:1745:HOH:O	2.50	0.43
1:B:114:ILE:CG2	1:B:135:TYR:HB3	2.49	0.43
1:A:377:ASN:HB3	1:A:379:GLU:H	1.84	0.43
1:C:746:MET:HE1	6:C:1622:HOH:O	2.19	0.43
1:C:756:SER:O	1:C:760:LYS:HG3	2.19	0.43
1:D:516:VAL:CG1	1:D:517:ILE:N	2.82	0.43
1:A:397:ILE:HD12	1:A:434:ILE:HD13	2.01	0.43
1:A:517:ILE:HG23	1:A:526:TYR:CE2	2.54	0.43
1:A:612:GLN:HE21	1:A:612:GLN:HB3	1.66	0.43
1:C:463:ASN:N	1:C:463:ASN:ND2	2.67	0.43
1:A:516:VAL:HG12	1:A:517:ILE:N	2.32	0.43
1:B:73:GLU:O	1:B:74:ASN:HB2	2.19	0.43
1:B:175:LYS:CG	1:B:182:SER:HB3	2.48	0.43
1:C:183:GLN:HE22	1:C:278:PRO:N	2.17	0.43
1:C:741:GLY:O	1:C:742:ILE:C	2.56	0.43
1:A:42:THR:HB	1:A:569:SER:OG	2.19	0.42
1:A:127:SER:HB3	1:A:211:TYR:CG	2.54	0.42
1:A:378:GLU:CD	1:A:378:GLU:H	2.22	0.42
1:B:175:LYS:HG3	1:B:182:SER:HB3	2.00	0.42
1:C:125:ARG:HG2	1:C:126:HIS:NE2	2.34	0.42
1:C:732:THR:HG22	1:D:732:THR:HG23	2.01	0.42
1:C:745:ASN:HB2	1:C:746:MET:HE2	2.01	0.42
1:A:415:LEU:HD13	1:A:416:TYR:N	2.33	0.42
1:C:135:TYR:CD2	1:C:137:LEU:HD23	2.54	0.42
1:C:718:GLN:HA	1:C:718:GLN:HE21	1.84	0.42
1:D:515:ASP:HB3	1:D:526:TYR:CE2	2.54	0.42
1:B:673:LEU:HD11	6:B:1720:HOH:O	2.18	0.42
1:C:53:PHE:CZ	1:C:507:VAL:HG11	2.55	0.42
1:C:75:ASN:ND2	1:C:92:ASN:HB2	2.29	0.42
1:B:143:ILE:HD12	1:B:143:ILE:N	2.34	0.42
1:C:289:PRO:HB3	1:C:315:TRP:CD2	2.54	0.42
1:C:612:GLN:HE21	1:C:612:GLN:HB3	1.65	0.42
1:C:615:LYS:CG	1:C:616:MET:N	2.82	0.42
1:D:377:ASN:HB2	1:D:381:TYR:H	1.84	0.42
1:A:90:LEU:HD23	1:A:90:LEU:HA	1.80	0.42
1:B:159:PRO:HD3	1:B:216:TRP:HB3	2.00	0.42
1:B:378:GLU:CD	1:B:378:GLU:N	2.61	0.42
1:C:114:ILE:CG2	1:C:135:TYR:HB3	2.50	0.42
1:A:490:GLU:O	1:A:492:ARG:N	2.53	0.42
1:B:524:PHE:CE2	1:B:590:ILE:HD12	2.54	0.42
1:B:718:GLN:HA	1:B:718:GLN:HE21	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:289:PRO:HG2	1:B:294:LEU:HG	2.01	0.42
1:D:112:GLN:HG2	1:D:138:ASN:HD21	1.84	0.42
1:D:299:TYR:CZ	1:D:665:VAL:HG22	2.55	0.42
1:D:610:THR:HA	1:D:613:PHE:CD2	2.55	0.42
1:B:316:ILE:HD11	1:B:320:GLN:HA	2.02	0.42
1:C:184:ARG:HH11	1:C:187:TRP:HA	1.84	0.42
1:A:154:TRP:CE2	1:A:212:SER:HB2	2.54	0.42
1:B:134:ILE:O	1:B:143:ILE:HD13	2.20	0.42
1:C:79:PHE:CD1	1:C:86:SER:HB3	2.55	0.42
1:D:457:TYR:HA	1:D:471:ARG:O	2.20	0.42
1:A:704:HIS:HE1	1:A:711:VAL:O	2.02	0.42
1:B:654:ALA:N	1:B:655:PRO:CD	2.82	0.42
1:C:73:GLU:CD	4:C:768(A):NAG:H61	2.40	0.42
1:C:533:HIS:O	1:C:534:PHE:C	2.57	0.42
1:D:107:VAL:HG12	1:D:114:ILE:HG13	2.01	0.42
1:D:114:ILE:HG22	1:D:135:TYR:HB3	2.01	0.42
1:A:502:LYS:HD2	1:A:505:GLN:OE1	2.20	0.41
1:A:626:ILE:HG23	1:A:636:THR:HG23	2.02	0.41
1:C:159:PRO:HD3	1:C:216:TRP:CB	2.50	0.41
1:D:39:SER:N	6:D:1670:HOH:O	2.52	0.41
1:A:402:TRP:CD2	1:A:421:GLU:HB2	2.55	0.41
1:C:159:PRO:HG2	1:C:217:SER:O	2.19	0.41
1:D:288:VAL:HG12	1:D:289:PRO:CD	2.49	0.41
1:D:405:ILE:HG13	1:D:429:ARG:CD	2.50	0.41
1:D:482:LEU:HD23	1:D:483:HIS:H	1.85	0.41
1:D:603:VAL:HG23	1:D:639:VAL:HG22	2.01	0.41
1:C:696:LYS:HG3	1:C:728:VAL:HG22	2.02	0.41
1:D:134:ILE:CG2	1:D:143:ILE:HD12	2.51	0.41
1:D:150:ASN:O	1:D:151:ASN:HB2	2.21	0.41
1:D:237:GLU:HA	1:D:252:VAL:O	2.20	0.41
1:A:140:ARG:HG2	1:A:140:ARG:NH1	2.35	0.41
1:B:237:GLU:HA	1:B:252:VAL:O	2.21	0.41
1:D:757:HIS:CE1	6:D:1744:HOH:O	2.73	0.41
1:A:92:ASN:C	1:A:94:THR:N	2.73	0.41
1:B:107:VAL:HG22	1:B:114:ILE:HD12	2.03	0.41
1:D:82:GLU:N	1:D:491:LEU:HD13	2.36	0.41
1:D:82:GLU:HA	1:D:491:LEU:HD13	2.03	0.41
1:B:140:ARG:NH1	1:B:140:ARG:HG2	2.35	0.41
1:B:507:VAL:HG22	1:B:508:GLN:N	2.36	0.41
1:B:519:LEU:HB3	1:B:520:HIS:CE1	2.56	0.41
1:A:328:CYS:HA	1:A:338:ILE:O	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:515:ASP:HB3	1:D:526:TYR:CZ	2.55	0.41
1:C:491:LEU:N	1:C:491:LEU:HD22	2.36	0.41
1:D:184:ARG:HD2	1:D:187:TRP:CD2	2.55	0.41
1:A:157:TRP:CZ3	1:A:164:LEU:HG	2.56	0.41
1:A:415:LEU:C	1:A:415:LEU:CD1	2.88	0.41
1:A:527:GLN:HB3	1:A:555:VAL:HG13	2.02	0.41
1:B:224:ALA:HB1	1:B:268:PHE:CZ	2.56	0.41
1:B:436:LEU:HD12	1:B:436:LEU:HA	1.87	0.41
1:C:232:GLU:HB3	1:C:262:GLU:HG2	2.03	0.41
1:C:483:HIS:CA	1:C:491:LEU:HD23	2.50	0.41
1:C:530:LEU:HA	1:C:531:PRO:HD3	1.90	0.41
1:D:105:TYR:HA	1:D:115:LEU:O	2.21	0.41
1:D:140:ARG:HG2	1:D:140:ARG:NH1	2.36	0.41
1:D:169:ASN:O	1:D:170:ASN:HB2	2.21	0.41
1:D:364:PHE:CD2	1:D:371:PHE:HB3	2.56	0.41
1:D:516:VAL:HG12	1:D:517:ILE:N	2.35	0.41
1:D:516:VAL:HG13	1:D:524:PHE:O	2.20	0.41
1:D:649:CYS:HB3	1:D:699:GLU:HB2	2.03	0.41
1:A:486:SER:OG	1:A:487:SER:N	2.54	0.41
1:A:616:MET:HB3	1:A:618:PHE:CE2	2.55	0.41
1:B:660:GLU:HG3	6:B:1520:HOH:O	2.21	0.41
1:C:134:ILE:HG21	1:C:178:PRO:HB3	2.03	0.41
1:B:610:THR:HA	1:B:613:PHE:CD2	2.56	0.40
1:D:154:TRP:CE2	1:D:212:SER:HB3	2.55	0.40
1:B:418:ILE:HD11	6:B:1506:HOH:O	2.20	0.40
1:C:345:HIS:HD2	6:C:1610:HOH:O	2.05	0.40
1:C:415:LEU:HD23	1:C:415:LEU:C	2.41	0.40
1:B:504:LEU:HA	1:B:507:VAL:HG12	2.03	0.40
1:C:282:VAL:HG12	1:C:284:SER:OG	2.22	0.40
1:C:654:ALA:HA	1:C:704:HIS:CD2	2.56	0.40
1:D:599:GLY:O	1:D:603:VAL:HG11	2.20	0.40
1:A:654:ALA:HA	1:A:704:HIS:CD2	2.56	0.40
1:D:219:ASN:HB2	1:D:308:GLU:CD	2.42	0.40
1:D:242:SER:HB3	1:D:246:LEU:HD12	2.02	0.40
1:B:405:ILE:HG13	1:B:429:ARG:HD3	2.04	0.40
1:C:41:ARG:NH1	1:C:507:VAL:HG12	2.36	0.40
1:C:76:ILE:HB	1:C:90:LEU:HD12	2.03	0.40
1:D:71:LYS:HA	1:D:75:ASN:O	2.21	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	726/728 (100%)	689 (95%)	34 (5%)	3 (0%)	30	19
1	B	726/728 (100%)	699 (96%)	25 (3%)	2 (0%)	37	25
1	C	726/728 (100%)	685 (94%)	35 (5%)	6 (1%)	16	6
1	D	726/728 (100%)	698 (96%)	28 (4%)	0	100	100
All	All	2904/2912 (100%)	2771 (95%)	122 (4%)	11 (0%)	30	19

All (11) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	40	ARG
1	B	491	LEU
1	C	103	ASN
1	C	104	ASP
1	C	535	ASP
1	C	536	LYS
1	A	491	LEU
1	B	40	ARG
1	A	97	GLU
1	C	74	ASN
1	C	99	GLY

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	652/652 (100%)	623 (96%)	29 (4%)	24	12
1	B	652/652 (100%)	625 (96%)	27 (4%)	26	14
1	C	652/652 (100%)	624 (96%)	28 (4%)	25	12
1	D	652/652 (100%)	626 (96%)	26 (4%)	27	14
All	All	2608/2608 (100%)	2498 (96%)	110 (4%)	25	13

All (110) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	40	ARG
1	A	74	ASN
1	A	90	LEU
1	A	119	ASN
1	A	125	ARG
1	A	142	LEU
1	A	145	GLU
1	A	180	LEU
1	A	192	ASN
1	A	246	LEU
1	A	294	LEU
1	A	367	ASP
1	A	385	CYS
1	A	399	LYS
1	A	415	LEU
1	A	448	GLU
1	A	463	ASN
1	A	471	ARG
1	A	472	CYS
1	A	492	ARG
1	A	520	HIS
1	A	542	LEU
1	A	543	LEU
1	A	561	LEU
1	A	566	TYR
1	A	679	ASN
1	A	701	LEU
1	A	718	GLN
1	A	761	GLN
1	B	86	SER
1	B	91	GLU
1	B	180	LEU
1	B	230	ASP

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Mol	Chain	Res	Type
1	B	246	LEU
1	B	294	LEU
1	B	367	ASP
1	B	379	GLU
1	B	385	CYS
1	B	436	LEU
1	B	450	ASN
1	B	472	CYS
1	B	506	ASP
1	B	520	HIS
1	B	535	ASP
1	B	536	LYS
1	B	542	LEU
1	B	543	LEU
1	B	561	LEU
1	B	566	TYR
1	B	611	ARG
1	B	679	ASN
1	B	701	LEU
1	B	702	LEU
1	B	718	GLN
1	B	732	THR
1	B	761	GLN
1	C	41	ARG
1	C	75	ASN
1	C	90	LEU
1	C	125	ARG
1	C	145	GLU
1	C	147	ARG
1	C	230	ASP
1	C	246	LEU
1	C	277	SER
1	C	294	LEU
1	C	385	CYS
1	C	399	LYS
1	C	448	GLU
1	C	472	CYS
1	C	482	LEU
1	C	503	MET
1	C	507	VAL
1	C	535	ASP
1	C	536	LYS

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Mol	Chain	Res	Type
1	C	542	LEU
1	C	561	LEU
1	C	566	TYR
1	C	679	ASN
1	C	701	LEU
1	C	732	THR
1	C	746	MET
1	C	759	LEU
1	C	761	GLN
1	D	91	GLU
1	D	103	ASN
1	D	142	LEU
1	D	230	ASP
1	D	246	LEU
1	D	253	ARG
1	D	276	LEU
1	D	294	LEU
1	D	358	ARG
1	D	393	ASN
1	D	399	LYS
1	D	436	LEU
1	D	448	GLU
1	D	482	LEU
1	D	535	ASP
1	D	536	LYS
1	D	561	LEU
1	D	566	TYR
1	D	581	ARG
1	D	608	GLU
1	D	673	LEU
1	D	679	ASN
1	D	701	LEU
1	D	702	LEU
1	D	718	GLN
1	D	759	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (102) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	61	GLN
1	A	74	ASN
1	A	75	ASN

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Mol	Chain	Res	Type
1	A	123	GLN
1	A	141	GLN
1	A	150	ASN
1	A	169	ASN
1	A	170	ASN
1	A	176	ASN
1	A	183	GLN
1	A	192	ASN
1	A	247	GLN
1	A	345	HIS
1	A	377	ASN
1	A	435	GLN
1	A	463	ASN
1	A	483	HIS
1	A	572	ASN
1	A	586	GLN
1	A	612	GLN
1	A	679	ASN
1	A	694	ASN
1	A	704	HIS
1	A	718	GLN
1	A	745	ASN
1	B	61	GLN
1	B	72	GLN
1	B	75	ASN
1	B	138	ASN
1	B	169	ASN
1	B	170	ASN
1	B	176	ASN
1	B	183	GLN
1	B	192	ASN
1	B	247	GLN
1	B	345	HIS
1	B	369	ASN
1	B	393	ASN
1	B	430	ASN
1	B	435	GLN
1	B	463	ASN
1	B	483	HIS
1	B	505	GLN
1	B	533	HIS
1	B	586	GLN

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Mol	Chain	Res	Type
1	B	612	GLN
1	B	679	ASN
1	B	694	ASN
1	B	704	HIS
1	B	718	GLN
1	B	731	GLN
1	B	761	GLN
1	C	72	GLN
1	C	75	ASN
1	C	119	ASN
1	C	138	ASN
1	C	141	GLN
1	C	169	ASN
1	C	170	ASN
1	C	176	ASN
1	C	183	GLN
1	C	192	ASN
1	C	247	GLN
1	C	345	HIS
1	C	369	ASN
1	C	393	ASN
1	C	435	GLN
1	C	463	ASN
1	C	483	HIS
1	C	505	GLN
1	C	586	GLN
1	C	612	GLN
1	C	679	ASN
1	C	694	ASN
1	C	704	HIS
1	C	718	GLN
1	C	745	ASN
1	C	757	HIS
1	C	761	GLN
1	D	61	GLN
1	D	72	GLN
1	D	75	ASN
1	D	103	ASN
1	D	138	ASN
1	D	141	GLN
1	D	169	ASN
1	D	170	ASN

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Mol	Chain	Res	Type
1	D	176	ASN
1	D	183	GLN
1	D	192	ASN
1	D	247	GLN
1	D	393	ASN
1	D	463	ASN
1	D	483	HIS
1	D	505	GLN
1	D	586	GLN
1	D	612	GLN
1	D	679	ASN
1	D	694	ASN
1	D	704	HIS
1	D	718	GLN
1	D	745	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](#)

20 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	2,1	14,14,15	0.76	0	17,19,21	0.61	0
2	NAG	E	2	2	14,14,15	0.52	0	17,19,21	0.71	1 (5%)
2	NAG	F	1	2,1	14,14,15	0.71	0	17,19,21	0.69	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	NAG	F	2	2	14,14,15	0.53	0	17,19,21	0.72	1 (5%)
3	NAG	G	1	3,1	14,14,15	0.52	0	17,19,21	0.72	0
3	NAG	G	2	3	14,14,15	0.61	0	17,19,21	0.67	0
3	BMA	G	3	3	11,11,12	0.46	0	15,15,17	0.63	0
2	NAG	H	1	2,1	14,14,15	0.48	0	17,19,21	0.71	0
2	NAG	H	2	2	14,14,15	0.52	0	17,19,21	0.81	0
2	NAG	I	1	2,1	14,14,15	0.73	0	17,19,21	0.76	0
2	NAG	I	2	2	14,14,15	0.62	0	17,19,21	0.79	1 (5%)
3	NAG	J	1	3,1	14,14,15	0.62	0	17,19,21	0.82	1 (5%)
3	NAG	J	2	3	14,14,15	0.44	0	17,19,21	0.71	0
3	BMA	J	3	3	11,11,12	0.63	0	15,15,17	0.54	0
2	NAG	K	1	2,1	14,14,15	0.66	0	17,19,21	0.55	0
2	NAG	K	2	2	14,14,15	0.49	0	17,19,21	0.66	0
2	NAG	L	1	2,1	14,14,15	0.73	0	17,19,21	0.81	0
2	NAG	L	2	2	14,14,15	0.63	0	17,19,21	0.72	1 (5%)
2	NAG	M	1	2,1	14,14,15	0.72	0	17,19,21	0.62	0
2	NAG	M	2	2	14,14,15	0.57	0	17,19,21	1.08	2 (11%)

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	2,1	-	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	2,1	-	0/6/23/26	0/1/1/1
2	NAG	F	2	2	-	2/6/23/26	0/1/1/1
3	NAG	G	1	3,1	-	2/6/23/26	0/1/1/1
3	NAG	G	2	3	-	2/6/23/26	0/1/1/1
3	BMA	G	3	3	-	2/2/19/22	0/1/1/1
2	NAG	H	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	H	2	2	-	0/6/23/26	0/1/1/1
2	NAG	I	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	I	2	2	-	0/6/23/26	0/1/1/1
3	NAG	J	1	3,1	-	2/6/23/26	0/1/1/1
3	NAG	J	2	3	-	3/6/23/26	0/1/1/1
3	BMA	J	3	3	-	1/2/19/22	0/1/1/1
2	NAG	K	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	K	2	2	-	4/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	NAG	L	1	2,1	-	3/6/23/26	0/1/1/1
2	NAG	L	2	2	-	2/6/23/26	0/1/1/1
2	NAG	M	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	M	2	2	-	3/6/23/26	0/1/1/1

There are no bond length outliers.

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	M	2	NAG	C1-C2-N2	2.68	114.66	110.43
2	I	2	NAG	C2-N2-C7	-2.47	119.59	122.90
2	F	2	NAG	C2-N2-C7	-2.21	119.94	122.90
3	J	1	NAG	C2-N2-C7	-2.20	119.95	122.90
2	E	2	NAG	C2-N2-C7	-2.18	119.98	122.90
2	M	2	NAG	O5-C1-C2	-2.15	107.97	111.29
2	L	2	NAG	C2-N2-C7	-2.13	120.04	122.90

There are no chirality outliers.

All (26) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	L	1	NAG	C8-C7-N2-C2
2	L	1	NAG	O7-C7-N2-C2
2	M	2	NAG	C1-C2-N2-C7
3	J	2	NAG	C3-C2-N2-C7
3	J	2	NAG	C8-C7-N2-C2
3	J	2	NAG	O7-C7-N2-C2
2	K	2	NAG	O5-C5-C6-O6
3	G	3	BMA	O5-C5-C6-O6
2	K	2	NAG	O7-C7-N2-C2
2	K	2	NAG	C4-C5-C6-O6
2	K	2	NAG	C8-C7-N2-C2
3	G	3	BMA	C4-C5-C6-O6
2	F	2	NAG	C4-C5-C6-O6
2	F	2	NAG	O5-C5-C6-O6
2	M	2	NAG	C8-C7-N2-C2
2	M	2	NAG	O7-C7-N2-C2
3	J	1	NAG	C8-C7-N2-C2
3	G	1	NAG	C4-C5-C6-O6
3	G	2	NAG	C4-C5-C6-O6

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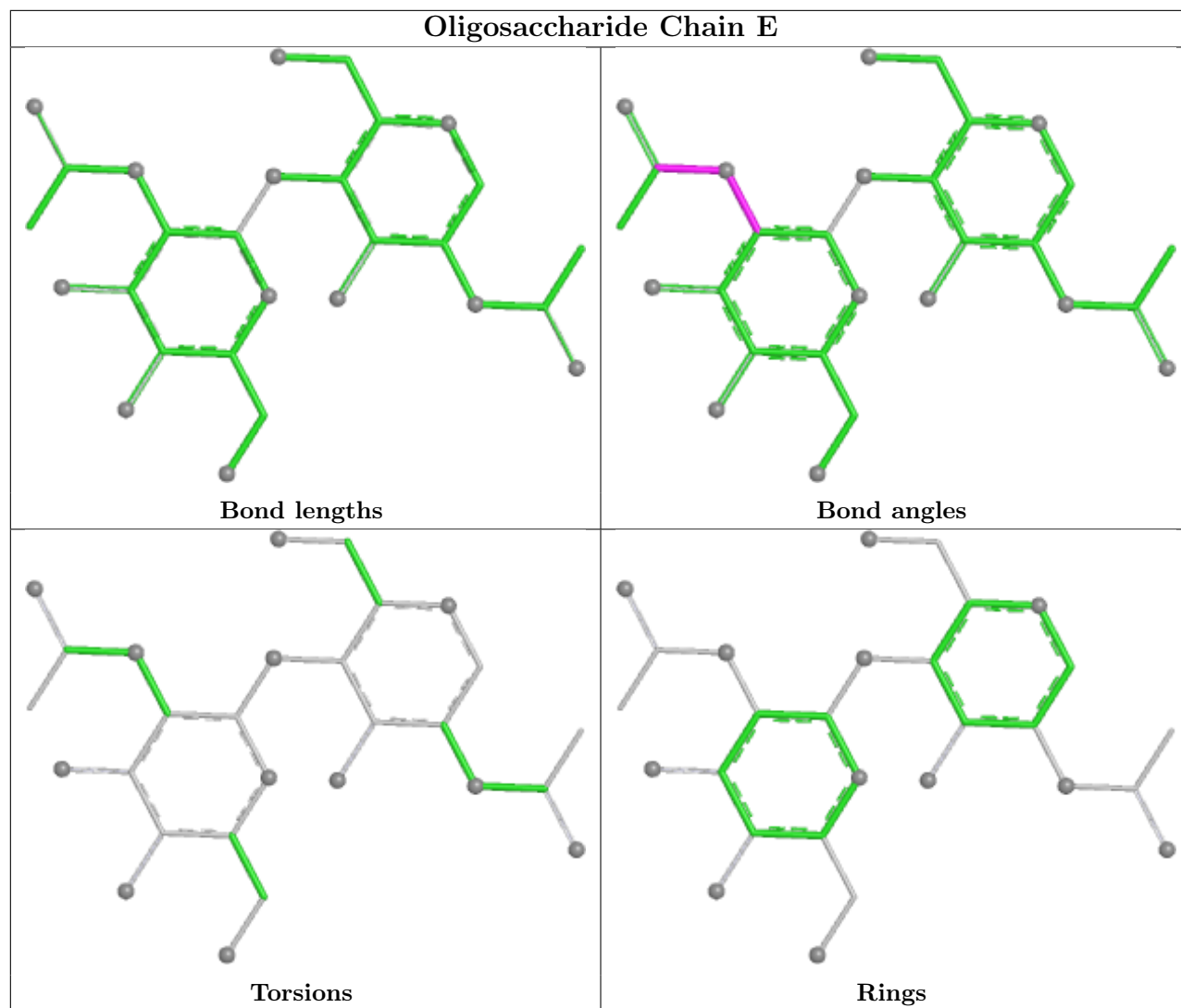
Mol	Chain	Res	Type	Atoms
3	G	2	NAG	O5-C5-C6-O6
3	J	1	NAG	O7-C7-N2-C2
3	G	1	NAG	O5-C5-C6-O6
3	J	3	BMA	C4-C5-C6-O6
2	L	2	NAG	C8-C7-N2-C2
2	L	1	NAG	C4-C5-C6-O6
2	L	2	NAG	O7-C7-N2-C2

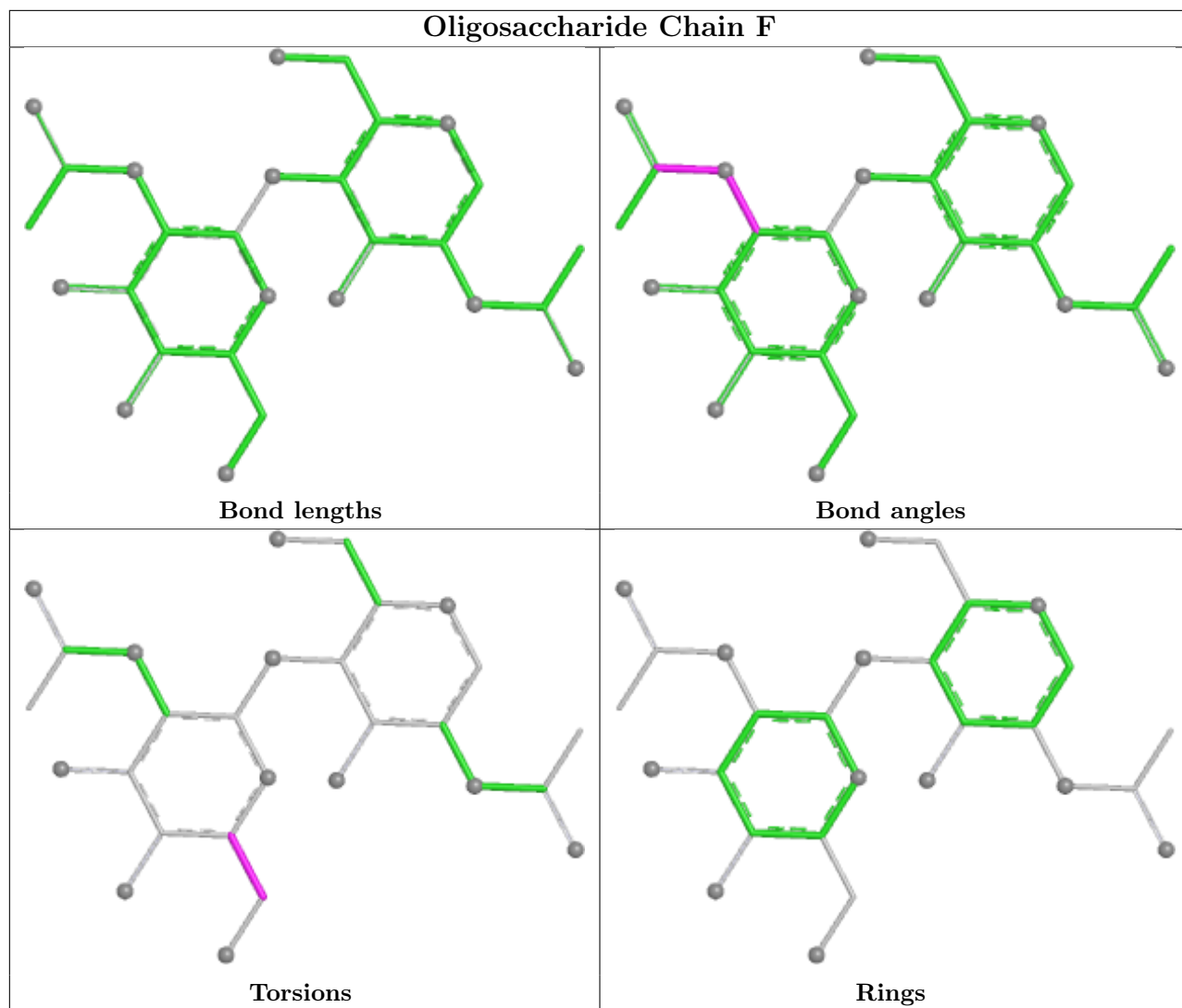
There are no ring outliers.

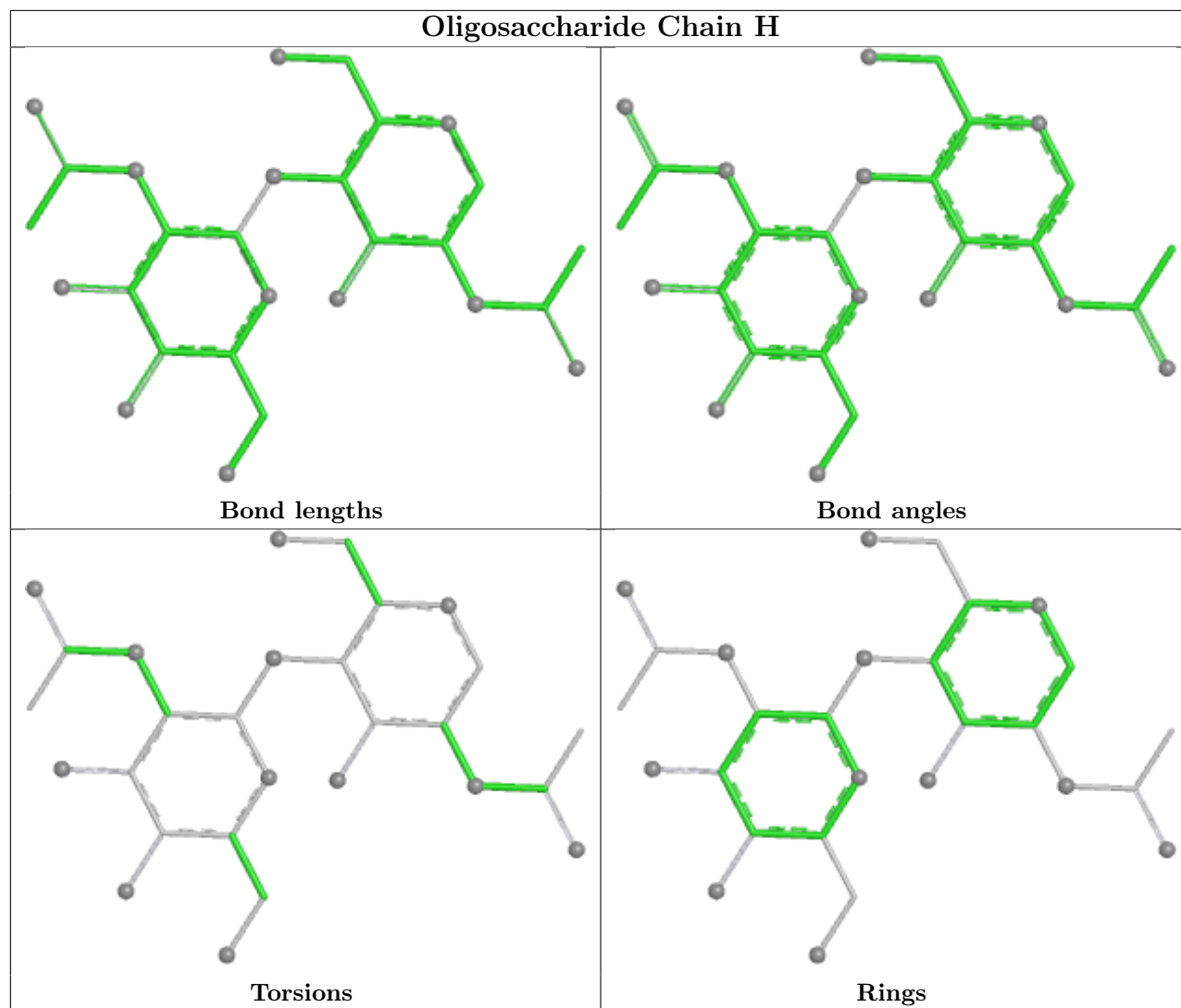
4 monomers are involved in 3 short contacts:

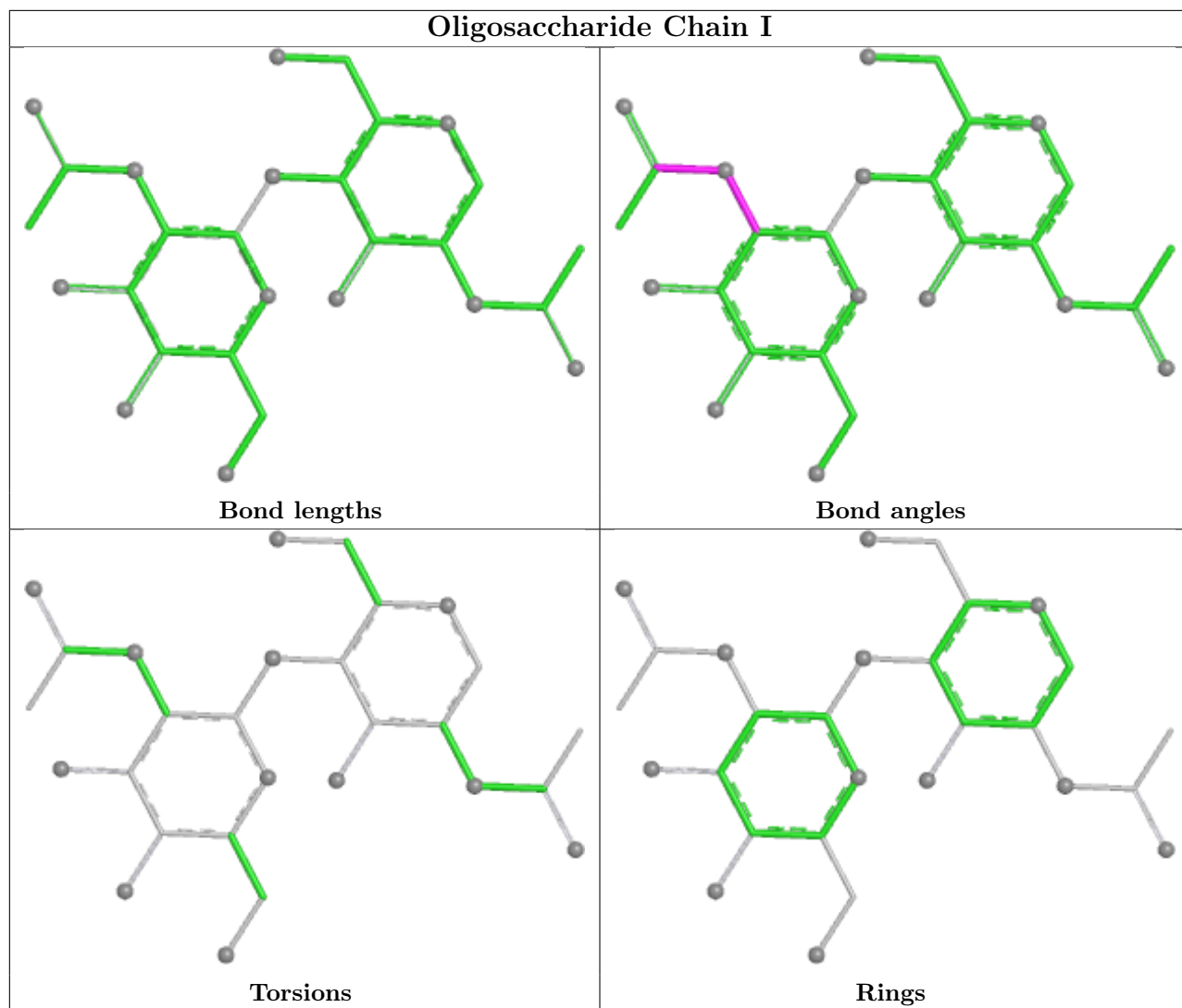
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	G	1	NAG	1	0
2	F	1	NAG	1	0
3	J	1	NAG	1	0
3	J	2	NAG	1	0

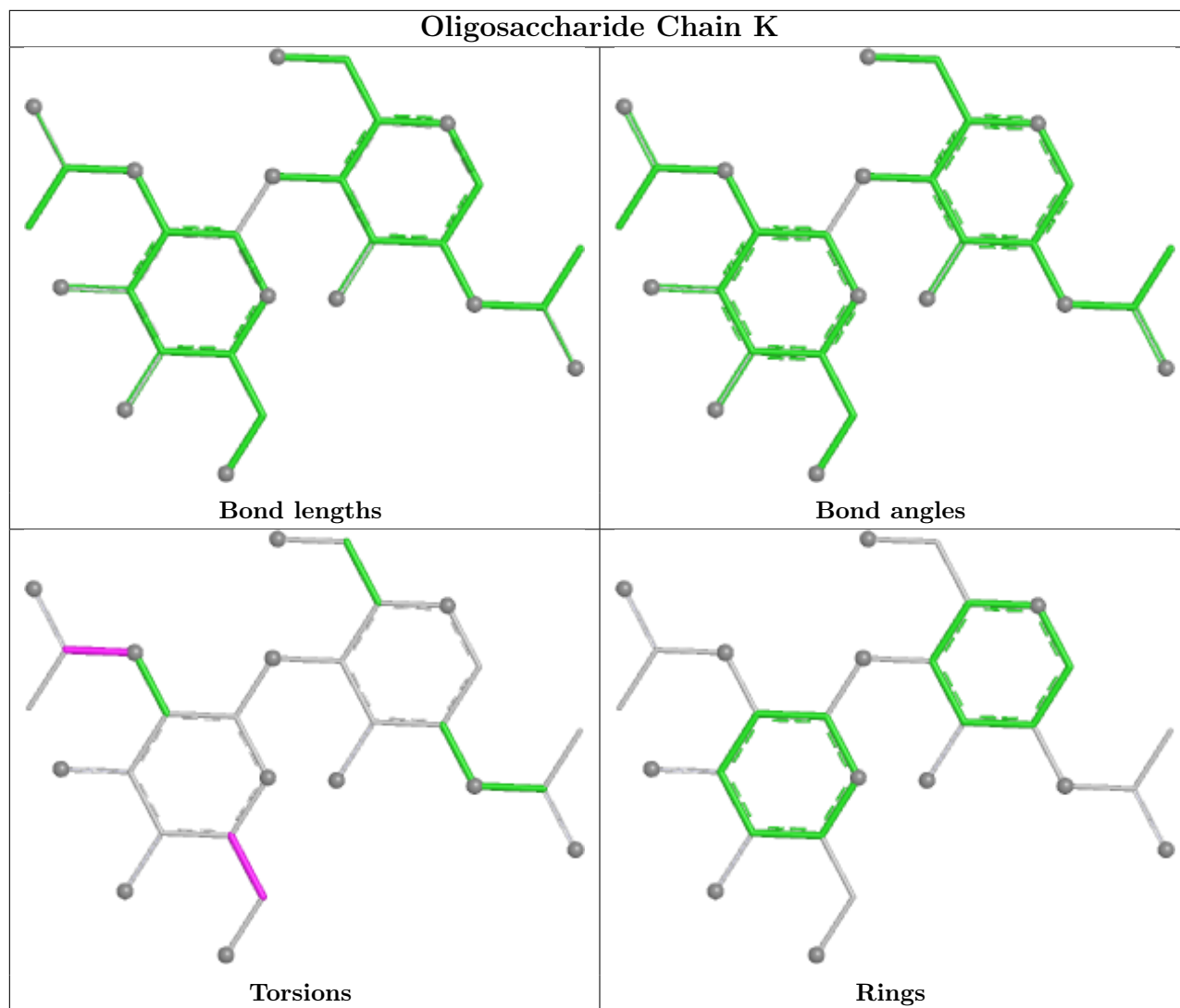
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

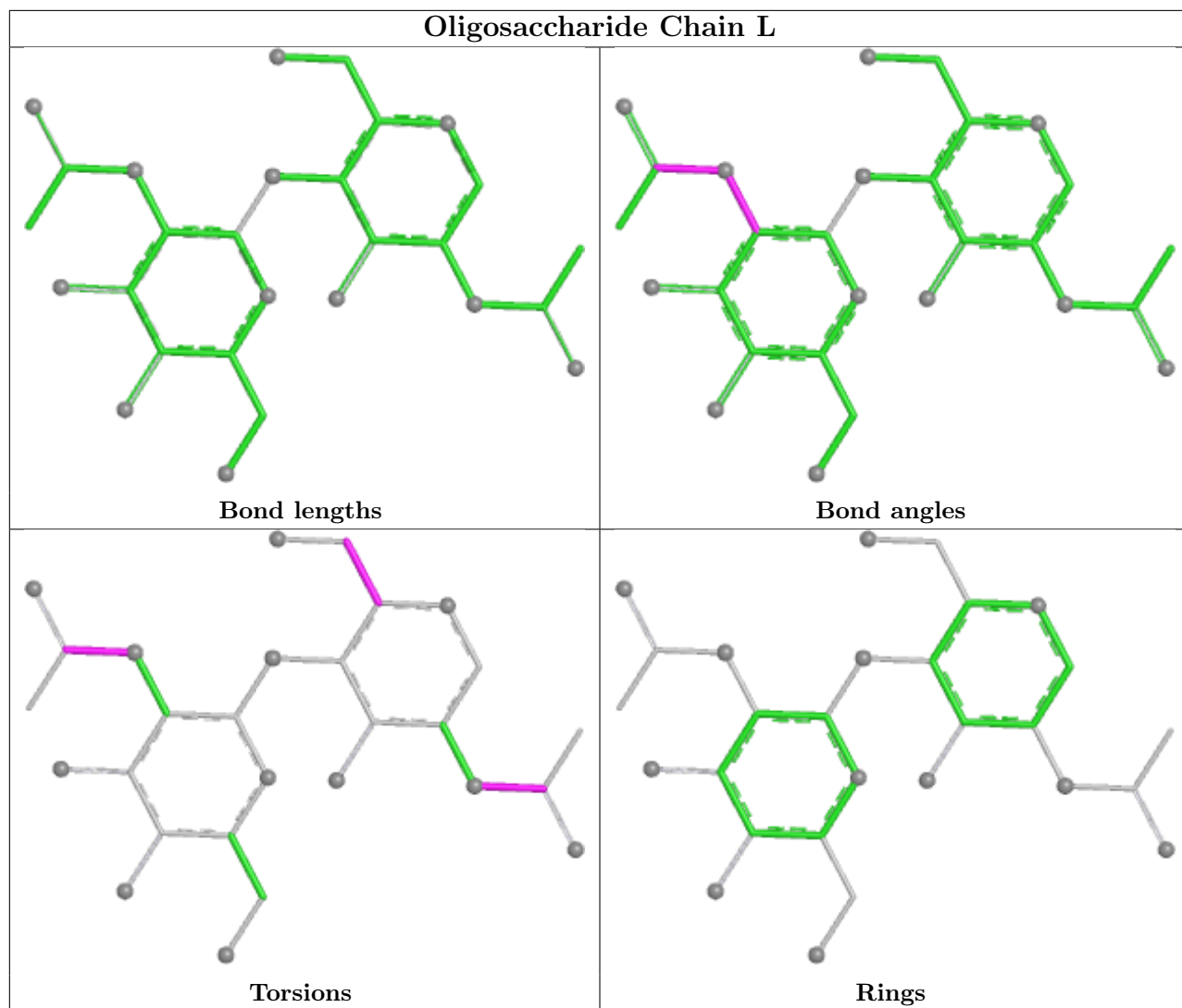


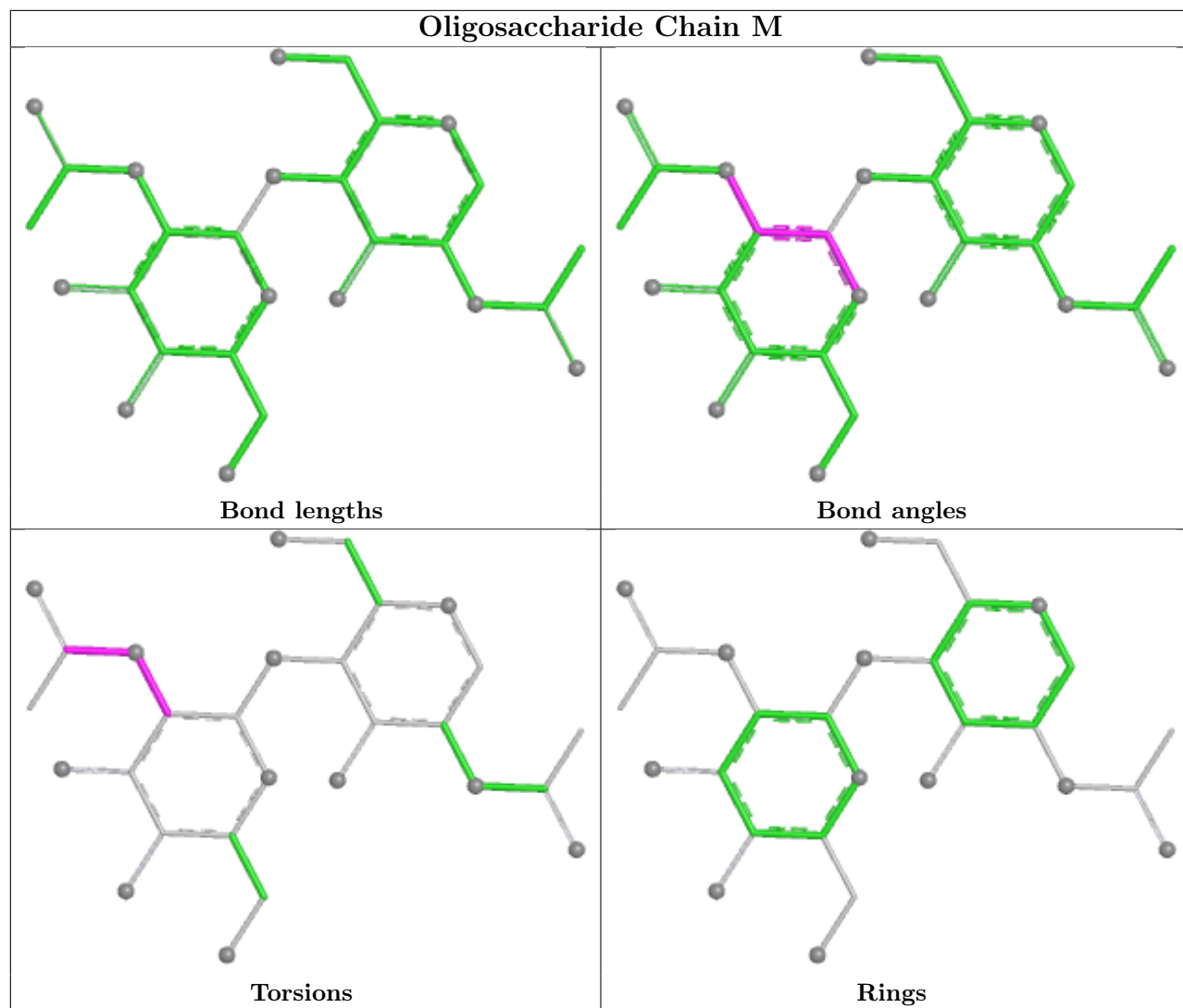


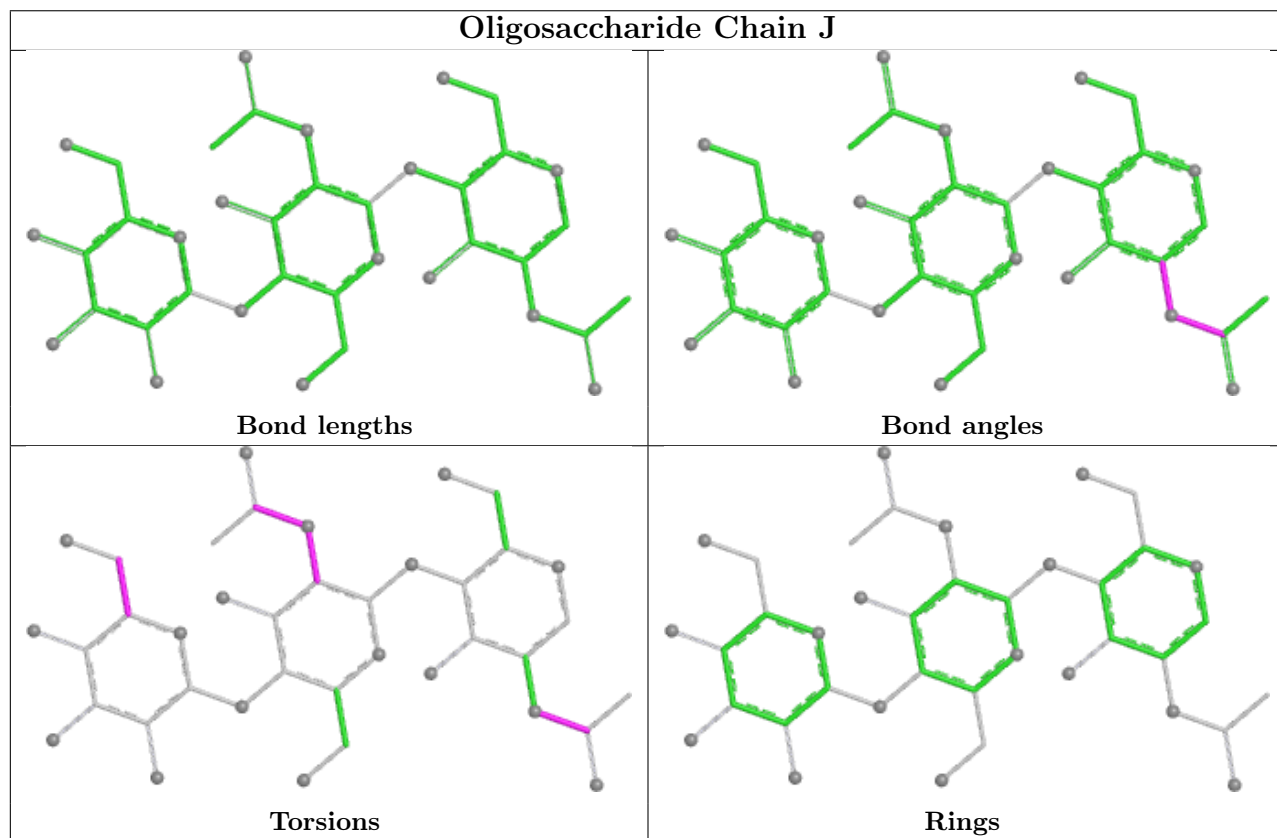
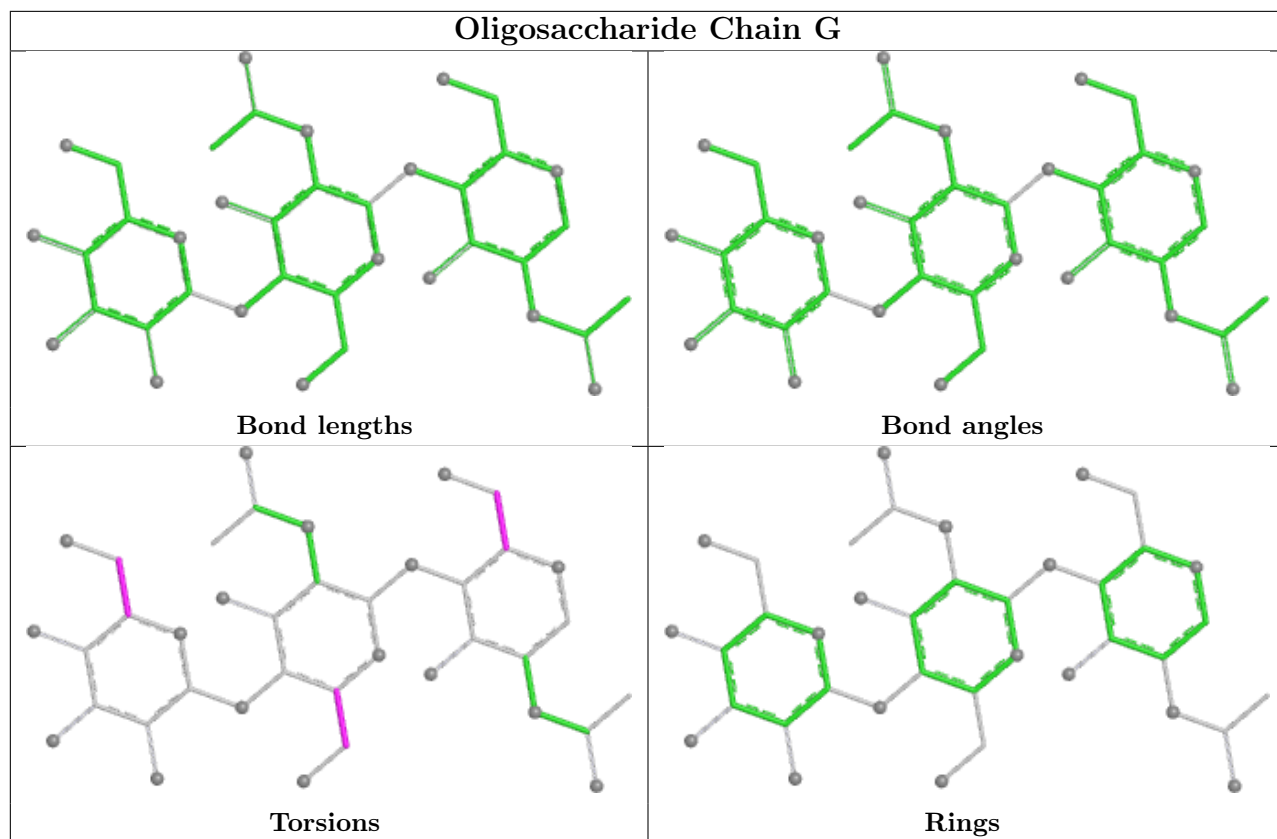












5.6 Ligand geometry

19 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
4	NAG	C	768(A)	1	14,14,15	0.56	0	17,19,21	0.74	1 (5%)
4	NAG	A	771(A)	1	14,14,15	0.49	0	17,19,21	0.75	1 (5%)
4	NAG	B	773(A)	1	14,14,15	0.56	0	17,19,21	0.79	1 (5%)
4	NAG	C	769(A)	1	14,14,15	0.53	0	17,19,21	0.80	1 (5%)
4	NAG	B	771(A)	1	14,14,15	0.70	0	17,19,21	0.60	0
4	NAG	D	767(A)	1	14,14,15	0.63	0	17,19,21	0.83	1 (5%)
4	NAG	B	767(A)	1	14,14,15	0.51	0	17,19,21	0.79	1 (5%)
4	NAG	A	768(A)	1	14,14,15	0.58	0	17,19,21	0.73	0
4	NAG	B	772(A)	1	14,14,15	0.63	0	17,19,21	0.86	0
4	NAG	A	767(A)	1	14,14,15	0.66	0	17,19,21	0.65	0
4	NAG	C	770(A)	1	14,14,15	0.62	0	17,19,21	0.64	0
5	SO4	C	1502	-	4,4,4	0.49	0	6,6,6	0.53	0
5	SO4	A	1500	-	4,4,4	0.58	0	6,6,6	0.65	0
4	NAG	D	773(A)	1	14,14,15	0.64	0	17,19,21	0.69	0
4	NAG	C	771(A)	1	14,14,15	0.51	0	17,19,21	0.91	0
4	NAG	A	772(A)	1	14,14,15	0.58	0	17,19,21	0.79	0
4	NAG	C	767(A)	1	14,14,15	0.46	0	17,19,21	0.72	1 (5%)
5	SO4	B	1501	-	4,4,4	0.36	0	6,6,6	0.58	0
5	SO4	D	1503	-	4,4,4	0.39	0	6,6,6	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
4	NAG	B	773(A)	1	-	2/6/23/26	0/1/1/1
4	NAG	C	769(A)	1	-	0/6/23/26	0/1/1/1
4	NAG	C	771(A)	1	-	2/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	NAG	D	773(A)	1	-	4/6/23/26	0/1/1/1
4	NAG	B	771(A)	1	-	0/6/23/26	0/1/1/1
4	NAG	A	772(A)	1	-	2/6/23/26	0/1/1/1
4	NAG	D	767(A)	1	-	2/6/23/26	0/1/1/1
4	NAG	C	767(A)	1	-	0/6/23/26	0/1/1/1
4	NAG	C	768(A)	1	-	2/6/23/26	0/1/1/1
4	NAG	B	767(A)	1	-	0/6/23/26	0/1/1/1
4	NAG	A	768(A)	1	-	2/6/23/26	0/1/1/1
4	NAG	B	772(A)	1	-	2/6/23/26	0/1/1/1
4	NAG	A	767(A)	1	-	0/6/23/26	0/1/1/1
4	NAG	A	771(A)	1	-	3/6/23/26	0/1/1/1
4	NAG	C	770(A)	1	-	2/6/23/26	0/1/1/1

There are no bond length outliers.

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	773(A)	NAG	C2-N2-C7	-2.59	119.43	122.90
4	D	767(A)	NAG	C2-N2-C7	-2.41	119.67	122.90
4	C	769(A)	NAG	C2-N2-C7	-2.27	119.86	122.90
4	A	771(A)	NAG	C2-N2-C7	-2.22	119.93	122.90
4	B	767(A)	NAG	C2-N2-C7	-2.22	119.93	122.90
4	C	768(A)	NAG	C2-N2-C7	-2.14	120.04	122.90
4	C	767(A)	NAG	C2-N2-C7	-2.04	120.17	122.90

There are no chirality outliers.

All (23) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	768(A)	NAG	C8-C7-N2-C2
4	A	768(A)	NAG	O7-C7-N2-C2
4	A	771(A)	NAG	C8-C7-N2-C2
4	A	771(A)	NAG	O7-C7-N2-C2
4	C	768(A)	NAG	C8-C7-N2-C2
4	C	768(A)	NAG	O7-C7-N2-C2
4	C	771(A)	NAG	C8-C7-N2-C2
4	C	771(A)	NAG	O7-C7-N2-C2
4	D	773(A)	NAG	C8-C7-N2-C2
4	D	773(A)	NAG	O7-C7-N2-C2

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Mol	Chain	Res	Type	Atoms
4	D	773(A)	NAG	O5-C5-C6-O6
4	B	772(A)	NAG	C8-C7-N2-C2
4	B	772(A)	NAG	O7-C7-N2-C2
4	C	770(A)	NAG	C8-C7-N2-C2
4	D	773(A)	NAG	C4-C5-C6-O6
4	C	770(A)	NAG	O7-C7-N2-C2
4	A	772(A)	NAG	C4-C5-C6-O6
4	B	773(A)	NAG	C4-C5-C6-O6
4	B	773(A)	NAG	O5-C5-C6-O6
4	A	772(A)	NAG	O5-C5-C6-O6
4	A	771(A)	NAG	O5-C5-C6-O6
4	D	767(A)	NAG	C8-C7-N2-C2
4	D	767(A)	NAG	O7-C7-N2-C2

There are no ring outliers.

5 monomers are involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	C	768(A)	NAG	1	0
4	B	773(A)	NAG	1	0
4	D	767(A)	NAG	1	0
4	B	767(A)	NAG	1	0
4	A	767(A)	NAG	2	0

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	724/728 (99%)	0.35	55 (7%) 21 19	19, 33, 61, 90	13 (1%)
1	B	728/728 (100%)	0.10	22 (3%) 52 50	16, 30, 50, 71	12 (1%)
1	C	723/728 (99%)	0.21	37 (5%) 34 31	13, 31, 56, 97	12 (1%)
1	D	728/728 (100%)	0.44	43 (5%) 29 27	20, 36, 63, 87	10 (1%)
All	All	2903/2912 (99%)	0.27	157 (5%) 32 30	13, 32, 59, 97	47 (1%)

All (157) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	81	ALA	5.3
1	C	98	LEU	5.3
1	A	83	TYR	5.0
1	C	95	PHE	5.0
1	A	94	THR	4.9
1	C	104	ASP	4.9
1	C	535	ASP	4.8
1	A	101	SER	4.5
1	B	83	TYR	4.5
1	A	103	ASN	4.5
1	C	537	SER	4.4
1	D	98	LEU	4.2
1	C	90	LEU	4.1
1	D	83	TYR	4.1
1	A	491	LEU	4.0
1	A	93	SER	4.0
1	D	143	ILE	4.0
1	C	536	LYS	3.9
1	C	40	ARG	3.8
1	D	100	TYR	3.7
1	A	79	PHE	3.7

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Mol	Chain	Res	Type	RSRZ
1	B	143	ILE	3.6
1	B	506	ASP	3.6
1	D	187	TRP	3.6
1	C	39	SER	3.6
1	D	81	ALA	3.5
1	D	377	ASN	3.5
1	A	89	PHE	3.4
1	B	39	SER	3.4
1	C	74	ASN	3.4
1	D	99	GLY	3.4
1	C	295	ILE	3.4
1	A	90	LEU	3.4
1	A	505	GLN	3.4
1	A	71	LYS	3.4
1	D	82	GLU	3.4
1	D	521	GLY	3.3
1	A	138	ASN	3.3
1	C	138	ASN	3.3
1	D	516	VAL	3.3
1	D	295	ILE	3.3
1	B	491	LEU	3.3
1	A	377	ASN	3.3
1	A	39	SER	3.2
1	A	95	PHE	3.2
1	A	102	THR	3.2
1	B	537	SER	3.2
1	C	97	GLU	3.1
1	A	69	LEU	3.1
1	A	506	ASP	3.1
1	A	86	SER	3.1
1	A	88	ILE	3.1
1	D	79	PHE	3.1
1	D	93	SER	3.1
1	D	538	LYS	3.0
1	C	120	TYR	3.0
1	D	537	SER	3.0
1	C	538	LYS	3.0
1	A	766	PRO	3.0
1	D	142	LEU	3.0
1	A	521	GLY	2.9
1	D	95	PHE	2.8
1	A	85	ASN	2.8

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Mol	Chain	Res	Type	RSRZ
1	C	73	GLU	2.8
1	A	96	ASP	2.8
1	B	54	ARG	2.8
1	B	84	GLY	2.8
1	C	96	ASP	2.8
1	C	93	SER	2.8
1	C	608	GLU	2.8
1	D	486	SER	2.8
1	B	99	GLY	2.7
1	D	439	TYR	2.7
1	B	82	GLU	2.7
1	C	179	ASN	2.7
1	C	142	LEU	2.7
1	D	90	LEU	2.7
1	A	72	GLN	2.7
1	B	41	ARG	2.7
1	A	761	GLN	2.7
1	A	507	VAL	2.6
1	C	141	GLN	2.6
1	A	74	ASN	2.6
1	D	101	SER	2.6
1	D	447	CYS	2.6
1	A	84	GLY	2.6
1	D	389	THR	2.6
1	D	766	PRO	2.5
1	C	745	ASN	2.5
1	B	766	PRO	2.5
1	B	533	HIS	2.5
1	C	151	ASN	2.5
1	A	70	TYR	2.4
1	C	135	TYR	2.4
1	B	40	ARG	2.4
1	A	57	PHE	2.4
1	B	57	PHE	2.4
1	D	57	PHE	2.4
1	C	94	THR	2.4
1	D	436	LEU	2.4
1	A	179	ASN	2.4
1	C	440	THR	2.4
1	A	40	ARG	2.4
1	C	140	ARG	2.4
1	A	75	ASN	2.3

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Mol	Chain	Res	Type	RSRZ
1	A	180	LEU	2.3
1	C	180	LEU	2.3
1	D	517	ILE	2.3
1	B	516	VAL	2.3
1	D	535	ASP	2.3
1	A	151	ASN	2.3
1	C	143	ILE	2.2
1	A	489	LYS	2.2
1	C	91	GLU	2.2
1	D	379	GLU	2.2
1	B	142	LEU	2.2
1	A	150	ASN	2.2
1	A	104	ASP	2.2
1	A	243	ASP	2.2
1	A	486	SER	2.2
1	A	493	VAL	2.2
1	B	507	VAL	2.2
1	C	762	CYS	2.2
1	B	520	HIS	2.2
1	D	181	SER	2.1
1	D	518	ASN	2.1
1	A	142	LEU	2.1
1	A	504	LEU	2.1
1	D	54	ARG	2.1
1	A	467	TYR	2.1
1	D	682	TYR	2.1
1	A	745	ASN	2.1
1	B	388	GLN	2.1
1	D	72	GLN	2.1
1	D	442	VAL	2.1
1	C	506	ASP	2.1
1	D	96	ASP	2.1
1	A	63	ILE	2.1
1	A	464	LYS	2.1
1	D	440	THR	2.1
1	A	80	ASN	2.1
1	D	40	ARG	2.1
1	D	506	ASP	2.1
1	B	98	LEU	2.1
1	C	766	PRO	2.1
1	D	505	GLN	2.1
1	D	492	ARG	2.1

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Mol	Chain	Res	Type	RSRZ
1	C	367	ASP	2.0
1	A	447	CYS	2.0
1	A	490	GLU	2.0
1	A	76	ILE	2.0
1	D	414	TYR	2.0
1	A	141	GLN	2.0
1	B	378	GLU	2.0
1	A	87	SER	2.0
1	C	54	ARG	2.0
1	C	518	ASN	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, 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.

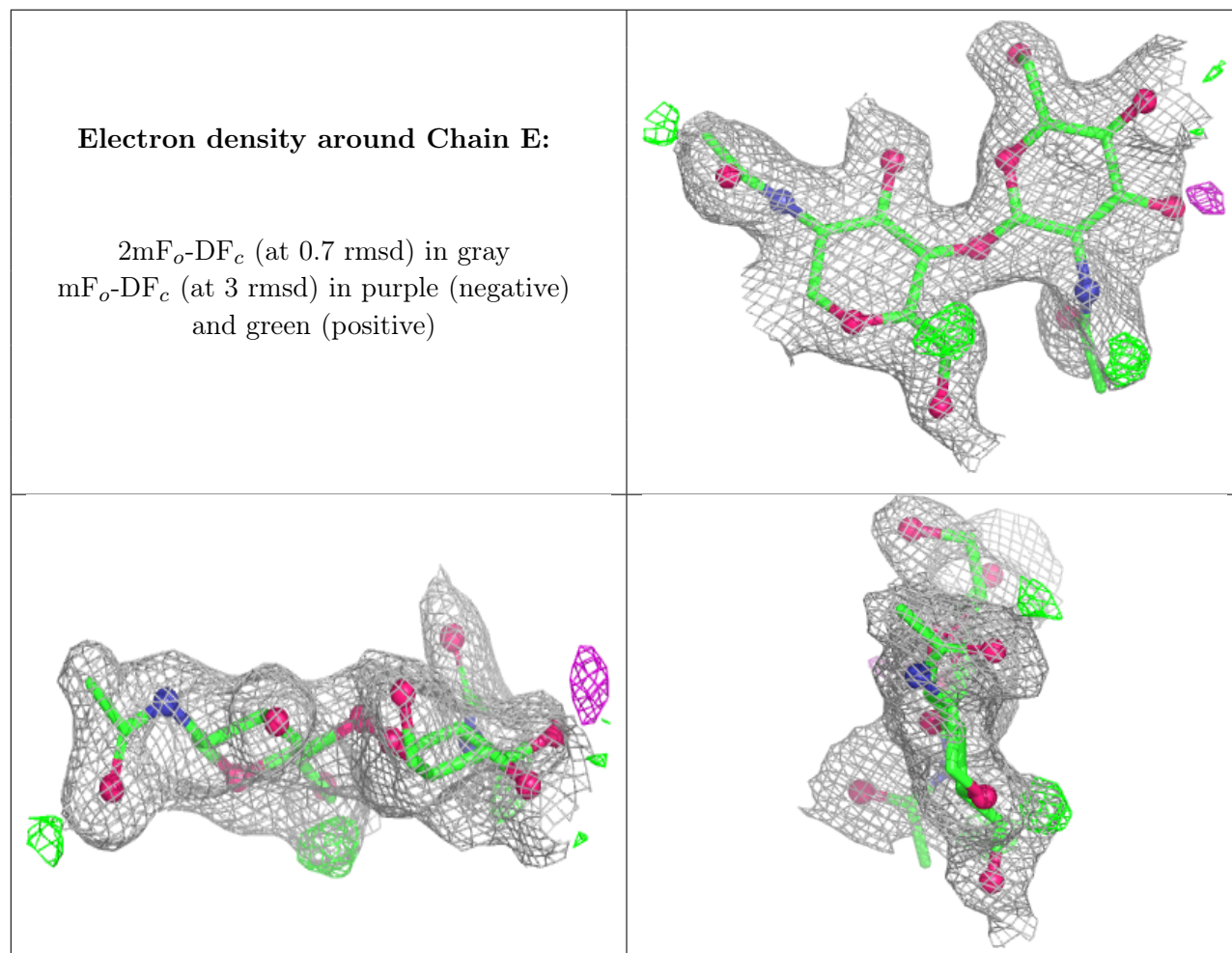
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
2	NAG	K	2	14/15	0.65	0.15	58,62,64,67	0
2	NAG	M	2	14/15	0.65	0.15	53,56,58,58	0
2	NAG	E	2	14/15	0.69	0.14	52,57,58,60	0
2	NAG	H	2	14/15	0.69	0.16	52,54,59,62	0
2	NAG	L	1	14/15	0.72	0.15	51,55,57,58	0
3	BMA	J	3	11/12	0.72	0.13	58,59,59,60	0
3	BMA	G	3	11/12	0.73	0.14	60,61,62,64	0
2	NAG	F	2	14/15	0.74	0.13	51,54,57,59	0
3	NAG	J	2	14/15	0.78	0.14	60,62,70,70	0
2	NAG	L	2	14/15	0.78	0.12	58,59,61,61	0
3	NAG	J	1	14/15	0.80	0.12	56,59,60,61	0
2	NAG	I	2	14/15	0.81	0.11	45,50,54,55	0
3	NAG	G	2	14/15	0.82	0.14	51,54,55,58	0
2	NAG	M	1	14/15	0.84	0.11	34,41,45,50	0
3	NAG	G	1	14/15	0.87	0.12	44,47,49,52	0
2	NAG	H	1	14/15	0.88	0.09	27,36,41,44	0
2	NAG	F	1	14/15	0.89	0.09	31,38,44,46	0
2	NAG	E	1	14/15	0.90	0.08	31,36,43,44	0

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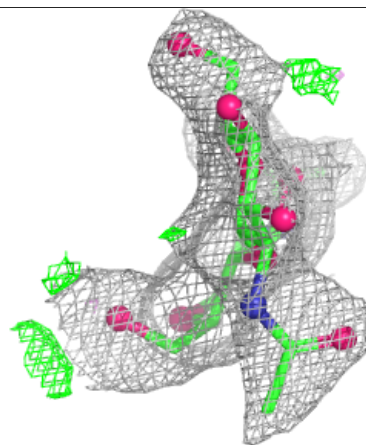
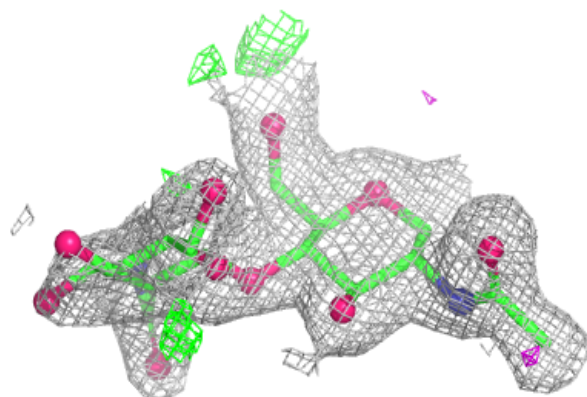
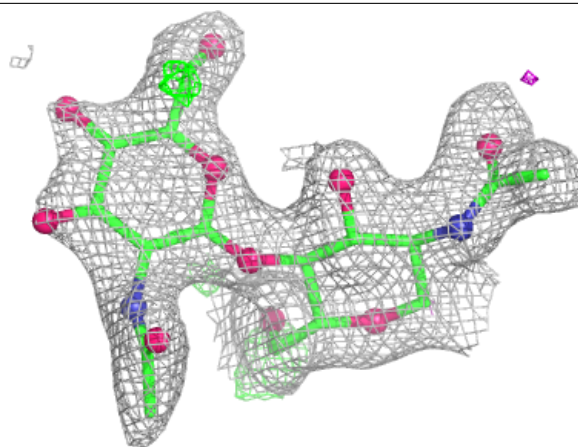
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
2	NAG	K	1	14/15	0.91	0.09	35,40,44,50	0
2	NAG	I	1	14/15	0.92	0.07	30,35,41,42	0

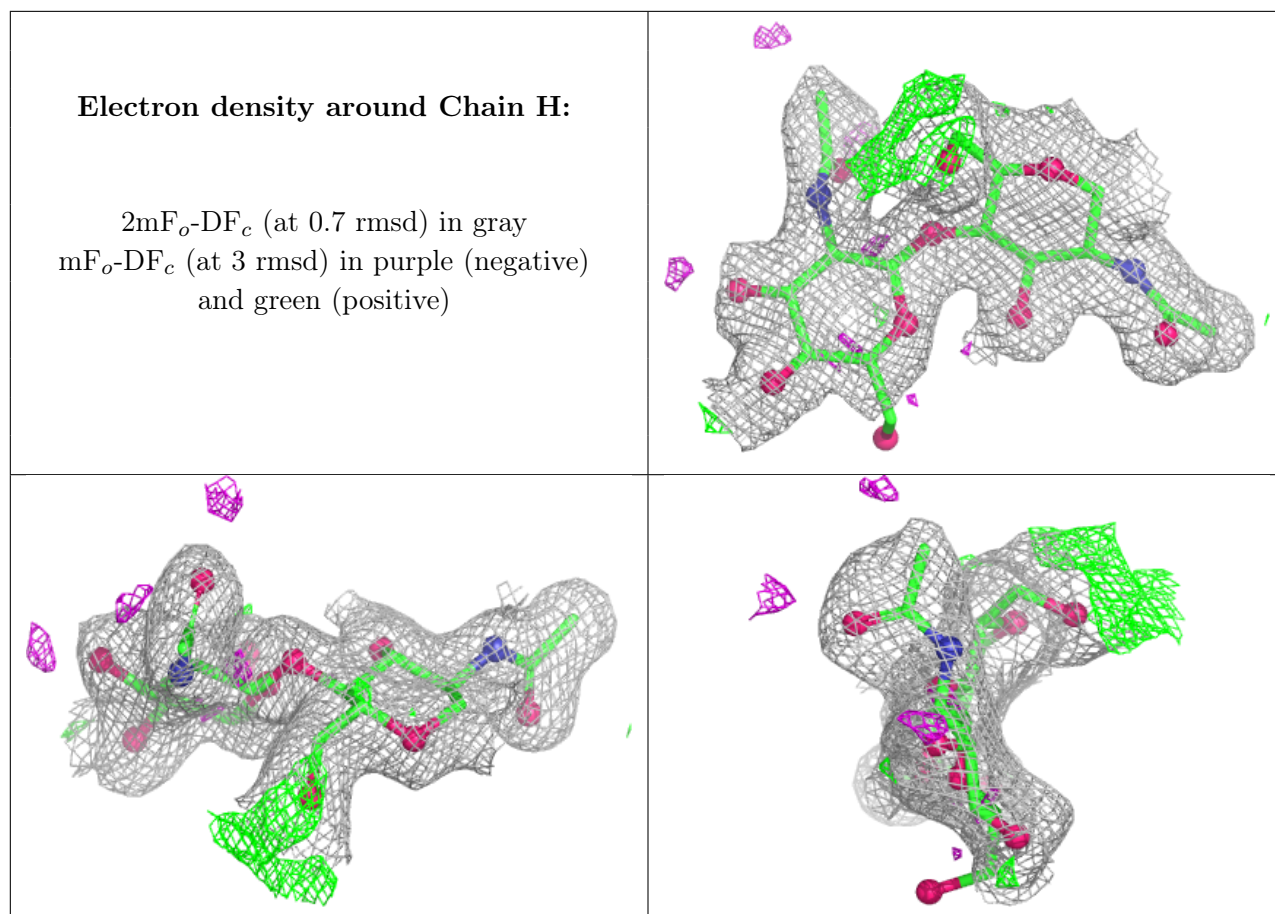
The following is a graphical depiction of the model fit to experimental electron density for oligosaccharide. Each fit is shown from different orientation to approximate a three-dimensional view.

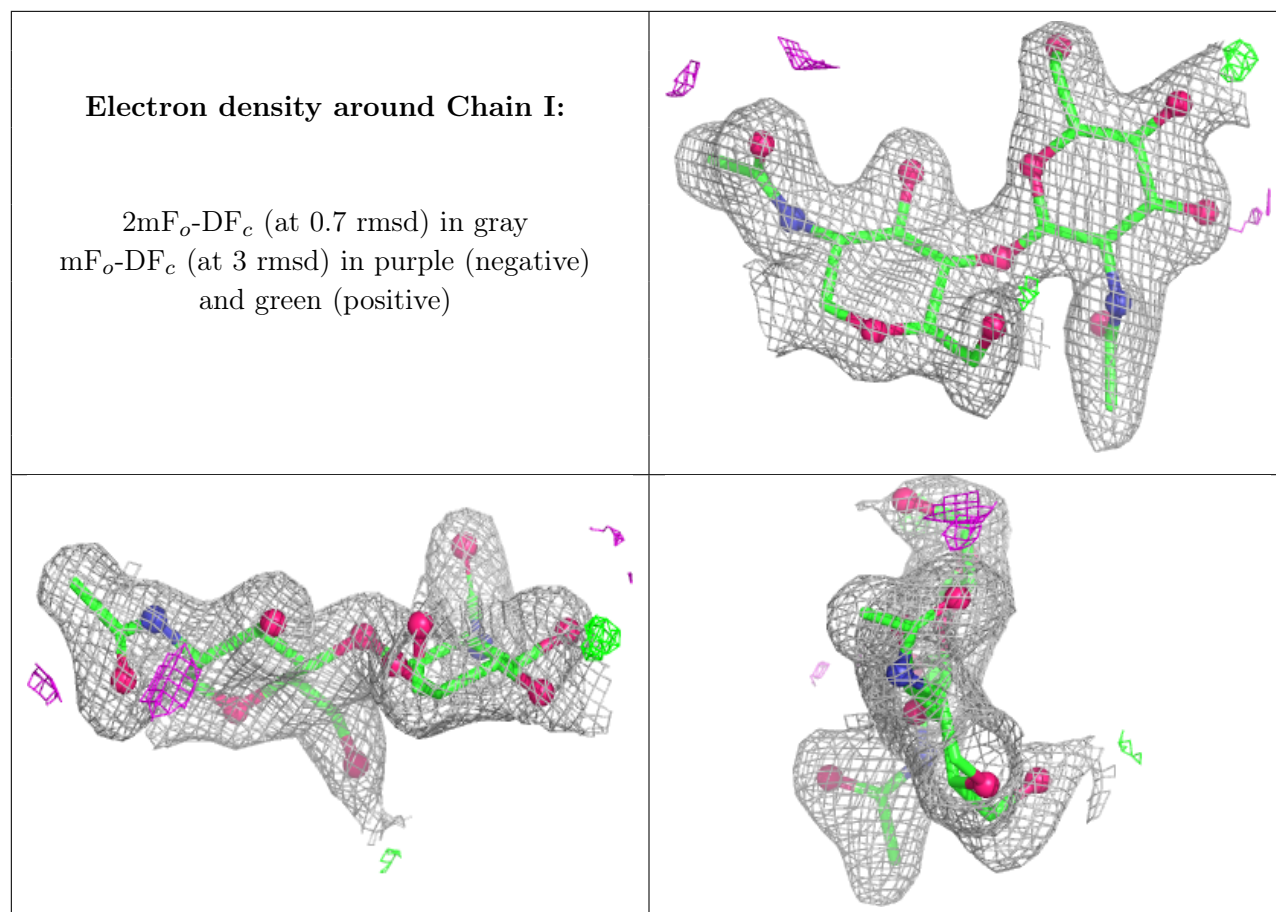


Electron density around Chain F:

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

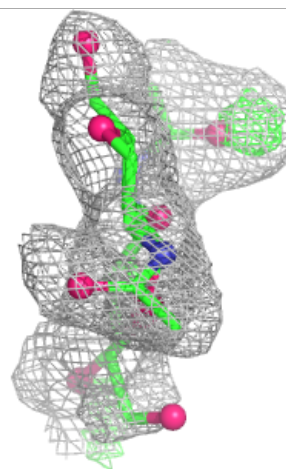
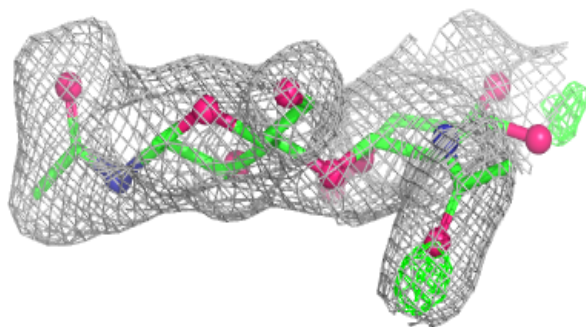
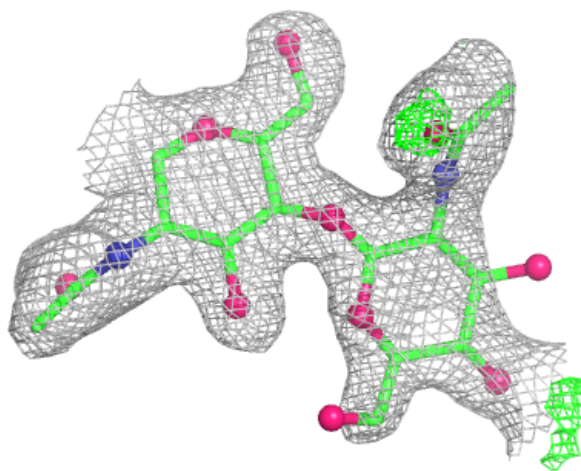






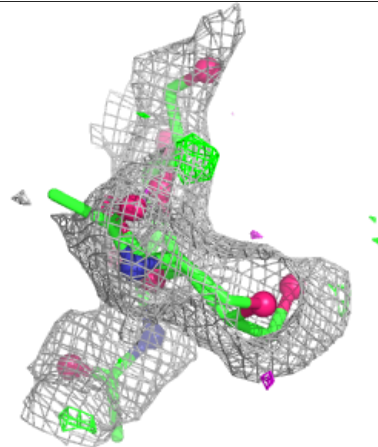
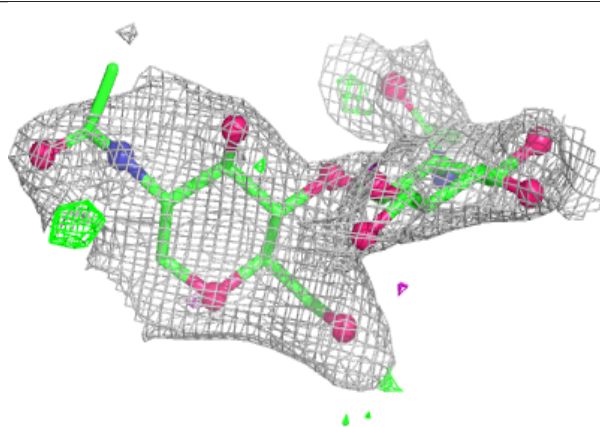
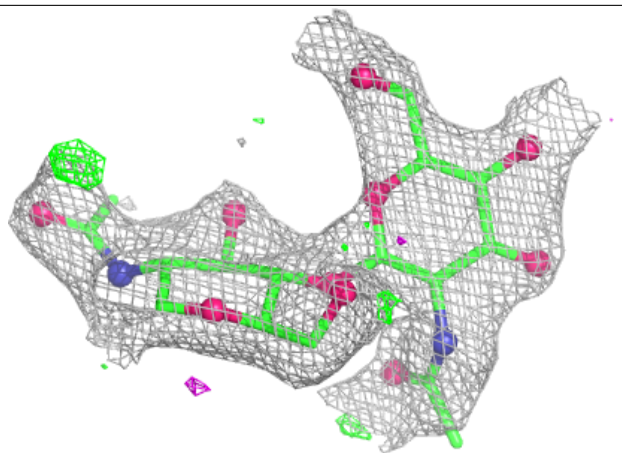
Electron density around Chain K:

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



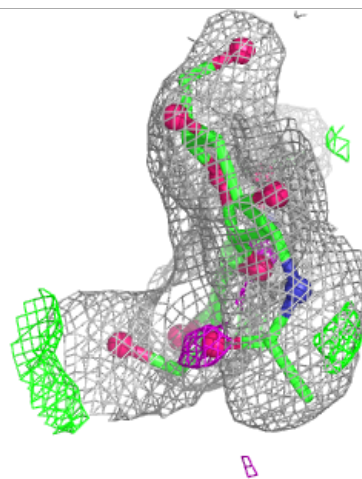
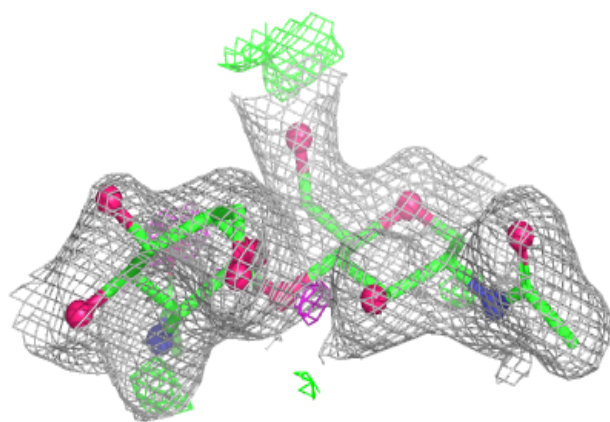
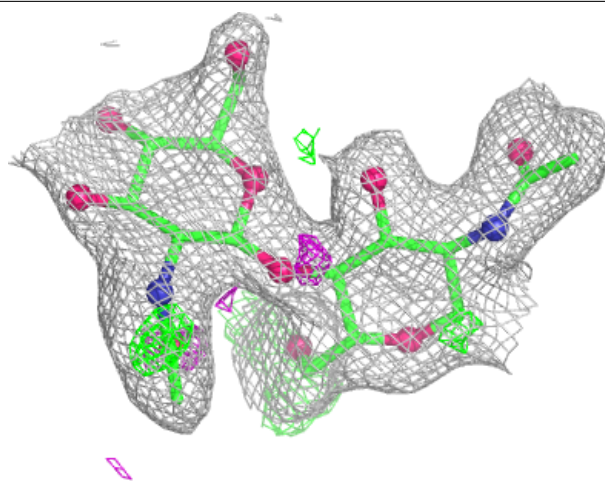
Electron density around Chain L:

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



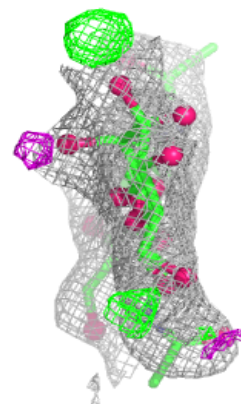
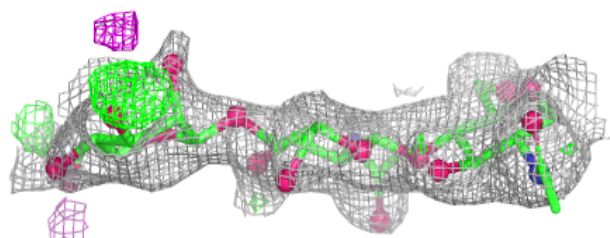
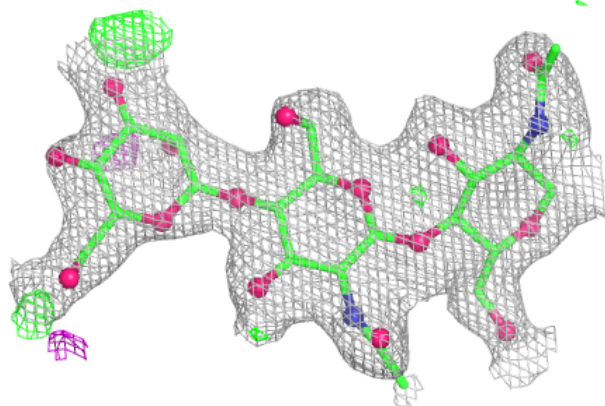
Electron density around Chain M:

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

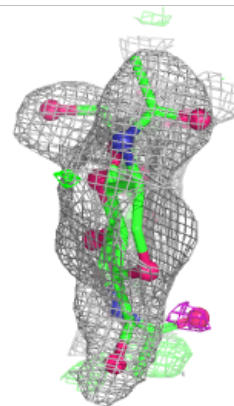
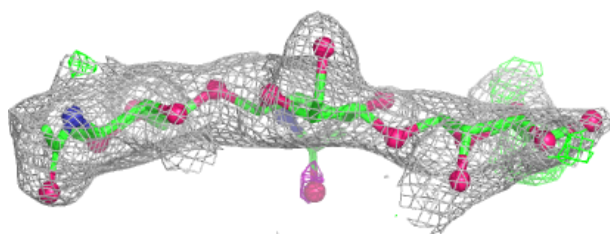
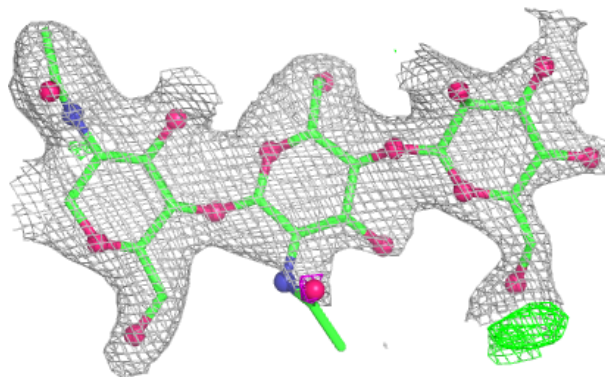


Electron density around Chain G:

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

**Electron density around Chain J:**

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



6.4 Ligands [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
4	NAG	D	767(A)	14/15	0.24	0.19	62,64,65,65	0
4	NAG	A	767(A)	14/15	0.43	0.16	70,73,73,74	0
4	NAG	D	773(A)	14/15	0.59	0.18	59,63,66,66	0
4	NAG	A	771(A)	14/15	0.63	0.17	50,53,55,56	3
4	NAG	C	771(A)	14/15	0.64	0.15	47,52,56,56	0
4	NAG	C	768(A)	14/15	0.66	0.18	82,84,87,87	0
4	NAG	C	767(A)	14/15	0.70	0.14	60,62,64,66	0
4	NAG	B	772(A)	14/15	0.75	0.13	45,47,50,51	0
4	NAG	A	768(A)	14/15	0.75	0.16	78,78,79,79	0
4	NAG	B	767(A)	14/15	0.76	0.15	65,66,69,70	0
4	NAG	C	770(A)	14/15	0.80	0.12	39,41,47,49	0
4	NAG	A	772(A)	14/15	0.81	0.12	44,48,54,54	0
4	NAG	B	773(A)	14/15	0.87	0.10	41,45,50,52	0
4	NAG	C	769(A)	14/15	0.88	0.10	31,36,40,43	0
4	NAG	B	771(A)	14/15	0.90	0.09	30,34,39,43	0
5	SO4	D	1503	5/5	0.93	0.10	38,40,41,42	0
5	SO4	B	1501	5/5	0.97	0.08	28,29,30,33	0
5	SO4	A	1500	5/5	0.97	0.08	33,34,35,37	0
5	SO4	C	1502	5/5	0.98	0.06	31,32,33,33	0

6.5 Other polymers [i](#)

There are no such residues in this entry.