



wwPDB X-ray Structure Validation Summary Report ⓘ

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PDB ID : 3KLS
Title : Structure of complement C5 in complex with SSL7
Authors : Laursen, N.S.; Gordon, N.; Hermans, S.; Lorenz, N.; Jackson, N.; Wines, B.;
Spillner, E.; Christensen, J.B.; Jensen, M.; Fredslund, F.; Bjerre, M.; Sottrup-
Jensen, L.; Fraser, J.D.; Andersen, G.R.
Deposited on : 2009-11-09
Resolution : 3.60 Å(reported)

This is a wwPDB X-ray Structure Validation Summary Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ 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 : 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

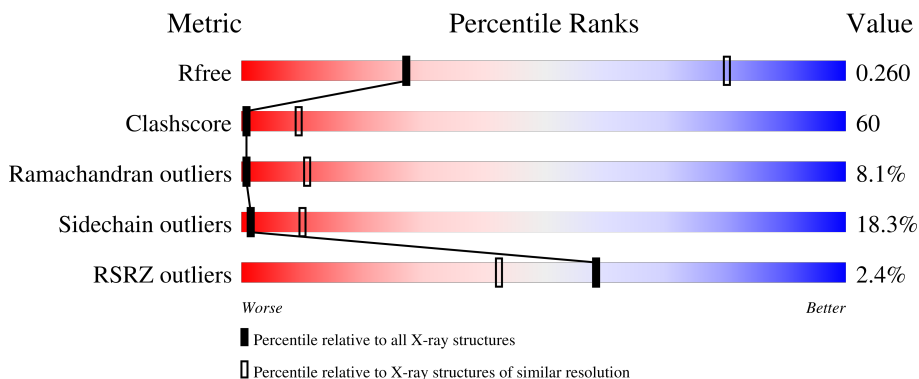
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.60 Å.

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




Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1257 (3.70-3.50)
Clashscore	141614	1353 (3.70-3.50)
Ramachandran outliers	138981	1307 (3.70-3.50)
Sidechain outliers	138945	1307 (3.70-3.50)
RSRZ outliers	127900	1161 (3.70-3.50)

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	1676	 2% 25% 53% 17%
1	B	1676	 23% 48% 16% 12%
2	X	231	 8% 29% 42% 10% 17%
2	Y	231	 6% 29% 42% 10% 17%
3	C	2	 50% 50%

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Mol	Chain	Length	Quality of chain
3	D	2	

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
5	NAG	A	1682	-	-	-	X

2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 27683 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 Complement C5.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	1622	Total	C	N	O	S	0	0	0
			12836	8224	2107	2452	53			
1	B	1478	Total	C	N	O	S	0	0	0
			11676	7478	1926	2226	46			

- Molecule 2 is a protein called Exotoxin 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	X	191	Total	C	N	O	S	0	0	0
			1539	965	267	306	1			
2	Y	191	Total	C	N	O	S	0	0	0
			1539	965	267	306	1			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
X	35	GLY	GLU	engineered mutation	UNP Q6GJP2
Y	35	GLY	GLU	engineered mutation	UNP Q6GJP2

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

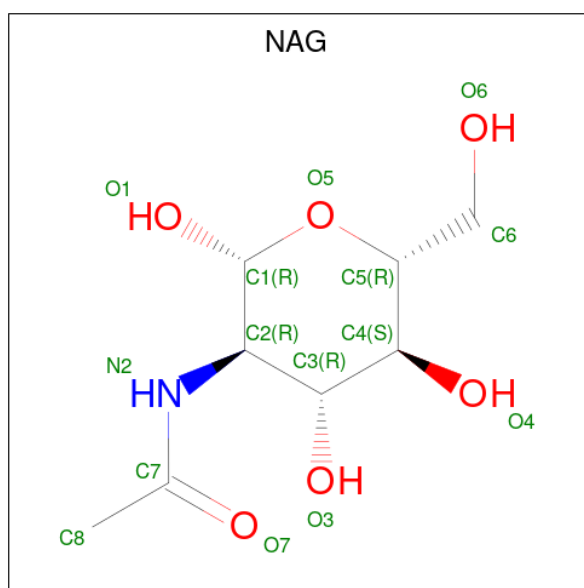


Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
3	C	2	Total	C	N	O	0	0	0
			28	16	2	10			
3	D	2	Total	C	N	O	0	0	0
			28	16	2	10			

- Molecule 4 is CADMIUM ION (three-letter code: CD) (formula: Cd).

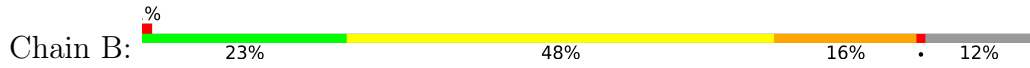
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	5	Total	Cd	0	0
			5	5		
4	B	4	Total	Cd	0	0
			4	4		

- Molecule 5 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: C₈H₁₅NO₆).



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

● Molecule 1: Complement C5



MET	GLY	LEU	LEU	GLY	ILE	LEU	CYS	PHE	PHE	ILE	LEU	GLY	LYS	THR	TRP	GLY	GLN	GLU	GLN	T22	Y22	V24	I25	S26	A27	R29	F31	R32	V33	G34	A35	S36	E37	N38	I39	V40	I41	Q42	V43	Y44	G45	Y46	T47	E48	A49	F50	D51	A52	T53	I54	S55	I56	K57	S58	Y59	P60										
D61	L126	F127	F64	H128	S65	T130	D131	S67	S68	G69	H70	V134	Y135	H71	H72	L73	K78	F79	Q80	Q80	F80	Q80	Q88	P89	K90	G91	L92	P93	Q96	N97	R97	P98	V99	S100	Y101	Y102	V103	L104	E105	V106	V107	S108	K109	H110	F111	S112	K113	S114	A48	K115	R116	A52	F118	I119	T120	S55	Y121	D122	M123	G124	F125					
P191	S192	N193	P194	R195	Y196	G197	M198	I201	Y205	E207	D208	F209	S210	S211	T211	A215	Y216	Y146	S147	L148	I187	N149	N150	D151	L152	L154	P154	P225	A155	K156	E157	E158	T159	V160	L161	T162	F163	I164	V171	D172	M173	V174	E175	F243	F243	K244	N245	F246	E247	I180	G181	I182	I183	K251	A252	R253	Y254	F255								
Y256	M257	K258	V259	V260	T261	E262	A263	D264	A265	G270	L271	R272	E273	D274	D277	D278	Q279	K280	E281	M282	M283	Q284	L285	L224	P225	A155	K156	E157	E158	T159	V160	L161	T162	F163	I164	V171	D172	M173	V174	E175	F243	F243	K244	N245	F246	E247	I180	G181	I182	I183	K251	A252	R253	Y254	F255											
K321	Y322	L323	Y324	R325	A326	V327	T328	V329	S330	S331	S332	G333	G334	F401	S402	D403	F209	L404	S337	E338	E339	A340	K408	S409	L342	Y347	R411	V413	D414	D415	A418	S419	I485	V486	L487	P488	N429	L424	T359	P491	P425	S426	G427	V428	T429	V430	P365	G366	L367	P368	Y369	P370	I371	K372	K308	E309	L310	Y313	S314	L315	E316	D317	Q381	L318	N319	N320
G384	G385	V386	Y387	R388	V389	L390	N391	A392	Q393	T394	I395	T401	S402	D403	F209	L404	S337	E338	E339	A340	K408	S409	L342	Y347	R411	V413	D414	D415	A418	S419	I485	V486	L487	P488	N429	L424	T359	P491	P425	S426	G427	V428	T429	V430	P365	G366	L367	P368	Y369	P370	I371	K372	K308	E309	L310	Y313	S314	L315	E316	D317	Q381	L318	N319	N320		
E450	G451	R452	Y453	A454	I455	A456	Y457	S458	S459	L460	T461	Y462	S463	Y464	Y465	Y466	I467	T470	D471	H472	H473	L477	V478	H481	I484	I485	V486	L487	P488	N429	L424	T359	P491	P425	S426	G427	V428	T429	V430	P365	G366	L367	P368	Y369	P370	I371	K372	K308	E309	L310	Y313	S314	L315	E316	D317	Q381	L318	N319	N320							
E516	K517	D520	F588	S522	Y523	I526	M527	N528	T594	S531	M532	M533	M534	M535	P536	S537	S538	R539	L540	L541	V542	Y543	Y544	V546	G548	E549	Q550	T551	A552	E553	L554	V555	S556	D557	S558	V559	M560	L561	N562	N563	E564	M569	Q570	L571	Q572	H573	H574	G575	L576	H511	S577	P577	Y582	S583												
P584	G585	Q586	L587	G588	L589	M591	M592	A593	T594	M595	M596	E597	D606	S607	A608	V609	Y610	G611	V612	ARG	PRO	ARG	ARG	ARG	THR	L679	K680	L681	L682	L683	E684	T686	A687	A688	K689	Y690	K691	H692	S693	V694	V695	K696	K697	C698	C699	G699	L700	D701	L640	M641	M642	A643	M644	N705	N706											
F646	H647	L648	A649	G650	L651	T652	F653	L654	T655	G656	A657	M658	A659	D660	E661	R662	W663	G664	M665	D666	E667	P668	C669	L672	L673	ARG	PRO	ARG	ARG	ARG	THR	L679	K680	L681	L682	L683	E684	T686	A687	A688	K689	Y690	K691	H692	S693	V694	V695	K696	K697	C698	C699	G699	L700	D701	L640	M641	M642	A643	M644	N705	N706					
W707	D708	E709	L710	H711	C712	W713	R714	A715	R716	R717	W718	L719	L720	F785	F788	A789	W790	R791	G792	S793	L794	T795	T796	W797	E798	I799	Q800	G801	L802	R803	L804	S805	L809	L810	A811	GLY	THR	GLN	L749	G750	R751	L752	H753	W754	K755	L758	P759	V760	S761	K762	P763	R764	L765	R766	P830	R767	S768	F769	P770	W773						
L774	W775	V776	V777	H778	H779	W780	F781	R782	R783	K784	W785	L786	Q787	F788	F788	A789	W790	R791	G792	S793	L794	T795	T796	W797	E798	I799	Q800	G801	L802	R803	L804	S805	L809	L810	A811	GLY	THR	GLN	L749	G750	R751	L752	H753	W754	K755	L758	P759	V760	S761	K762	P763	R764	L765	R766	P830	R767	S768	F769	P770	W773						
Q838	I839	Q840	L841	K842	G843	T844	Y845	Y846	N847	Y848	M853	Q854	F855	C856	W857	K858	M859	S860	A861	T862	T867	S868	E869	S870	P871	VAL	ILE	ASP	GLN	ASP	GLY	THR	LYS	SER	K882	C883	V884	R885	Q886	K887	V888	E889	L892	F824	L825	E826	M827	L895	L896	R897	F898	T899	V900	L901	P902	L903										

4 Data and refinement statistics

Property	Value	Source
Space group	P 31	Depositor
Cell constants a, b, c, α , β , γ	143.88Å 143.88Å 241.24Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	29.05 – 3.60 29.31 – 3.60	Depositor EDS
% Data completeness (in resolution range)	99.5 (29.05-3.60) 99.6 (29.31-3.60)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.09	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.39 (at 3.65Å)	Xtriage
Refinement program	PHENIX (phenix.refine)	Depositor
R, R_{free}	0.198 , 0.263 0.193 , 0.260	Depositor DCC
R_{free} test set	3224 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å ²)	111.0	Xtriage
Anisotropy	0.346	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.30 , 120.3	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.30$	Xtriage
Estimated twinning fraction	0.025 for -h,-k,l 0.410 for h,-h-k,-l 0.028 for -k,-h,-l	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	27683	wwPDB-VP
Average B, all atoms (Å ²)	156.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.55% 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: CD, 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	0.59	1/13111 (0.0%)	0.82	7/17784 (0.0%)
1	B	0.60	2/11928 (0.0%)	0.83	6/16183 (0.0%)
2	X	0.33	0/1560	0.56	0/2096
2	Y	0.33	0/1560	0.57	1/2096 (0.0%)
All	All	0.57	3/28159 (0.0%)	0.80	14/38159 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	4
1	B	0	2
All	All	0	6

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	247	GLU	CB-CG	5.75	1.63	1.52
1	B	247	GLU	CG-CD	5.70	1.60	1.51
1	A	247	GLU	CB-CG	5.40	1.62	1.52

The worst 5 of 14 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	1487	PHE	N-CA-CB	7.79	124.62	110.60
1	A	1303	LEU	CA-CB-CG	6.25	129.68	115.30
1	B	1303	LEU	CA-CB-CG	6.20	129.56	115.30
1	A	1283	GLY	N-CA-C	5.75	127.47	113.10

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	1283	GLY	N-CA-C	5.71	127.37	113.10

There are no chirality outliers.

5 of 6 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	1179	THR	Peptide
1	A	1633	PHE	Peptide
1	A	1635	TYR	Peptide
1	A	651	LEU	Peptide
1	B	651	LEU	Peptide

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	12836	0	12796	1596	1
1	B	11676	0	11649	1413	1
2	X	1539	0	1530	162	0
2	Y	1539	0	1530	163	0
3	C	28	0	25	3	0
3	D	28	0	25	2	0
4	A	5	0	0	0	0
4	B	4	0	0	0	0
5	A	14	0	13	0	0
5	B	14	0	13	0	0
All	All	27683	0	27581	3288	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 60.

The worst 5 of 3288 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1279:ARG:HG3	1:B:1284:PHE:CB	1.60	1.32

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1488:LEU:HD12	1:B:1488:LEU:O	1.31	1.30
1:A:1279:ARG:HG3	1:A:1284:PHE:CB	1.60	1.29
1:A:1486:GLY:O	1:A:1487:PHE:CD2	1.86	1.27
1:B:1323:LEU:HD12	1:B:1324:HIS:H	1.04	1.15

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:955:ARG:NH2	1:B:434:ASN:OD1[3_454]	2.19	0.01

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	1612/1676 (96%)	1199 (74%)	273 (17%)	140 (9%)	1	9
1	B	1468/1676 (88%)	1126 (77%)	224 (15%)	118 (8%)	1	11
2	X	189/231 (82%)	150 (79%)	28 (15%)	11 (6%)	1	18
2	Y	189/231 (82%)	150 (79%)	29 (15%)	10 (5%)	2	19
All	All	3458/3814 (91%)	2625 (76%)	554 (16%)	279 (8%)	1	11

5 of 279 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	46	TYR
1	A	59	TYR
1	A	97	ASN
1	A	209	PHE
1	A	243	PHE

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	1438/1484 (97%)	1168 (81%)	270 (19%)	1	9
1	B	1311/1484 (88%)	1055 (80%)	256 (20%)	1	9
2	X	175/205 (85%)	155 (89%)	20 (11%)	5	29
2	Y	175/205 (85%)	154 (88%)	21 (12%)	5	27
All	All	3099/3378 (92%)	2532 (82%)	567 (18%)	1	10

5 of 567 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	1069	TRP
1	B	1142	LEU
1	B	1067	SER
1	B	1401	ARG
1	A	1208	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 100 such sidechains are listed below:

Mol	Chain	Res	Type
1	B	288	GLN
1	B	840	GLN
2	Y	176	ASN
1	B	393	GLN
1	B	572	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

5.5 Carbohydrates i

4 monosaccharides are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	NAG	C	1	3,1	14,14,15	0.58	0	17,19,21	1.41	2 (11%)
3	NAG	C	2	3	14,14,15	0.43	0	17,19,21	1.11	1 (5%)
3	NAG	D	1	3,1	14,14,15	0.57	0	17,19,21	1.13	1 (5%)
3	NAG	D	2	3	14,14,15	0.40	0	17,19,21	1.04	1 (5%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

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

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	C	1	NAG	C1-O5-C5	3.74	117.27	112.19
3	C	2	NAG	C1-O5-C5	3.50	116.93	112.19
3	C	1	NAG	C2-N2-C7	-3.39	118.08	122.90
3	D	2	NAG	C1-O5-C5	3.35	116.73	112.19
3	D	1	NAG	C3-C4-C5	-2.69	105.44	110.24

There are no chirality outliers.

5 of 6 torsion outliers are listed below:

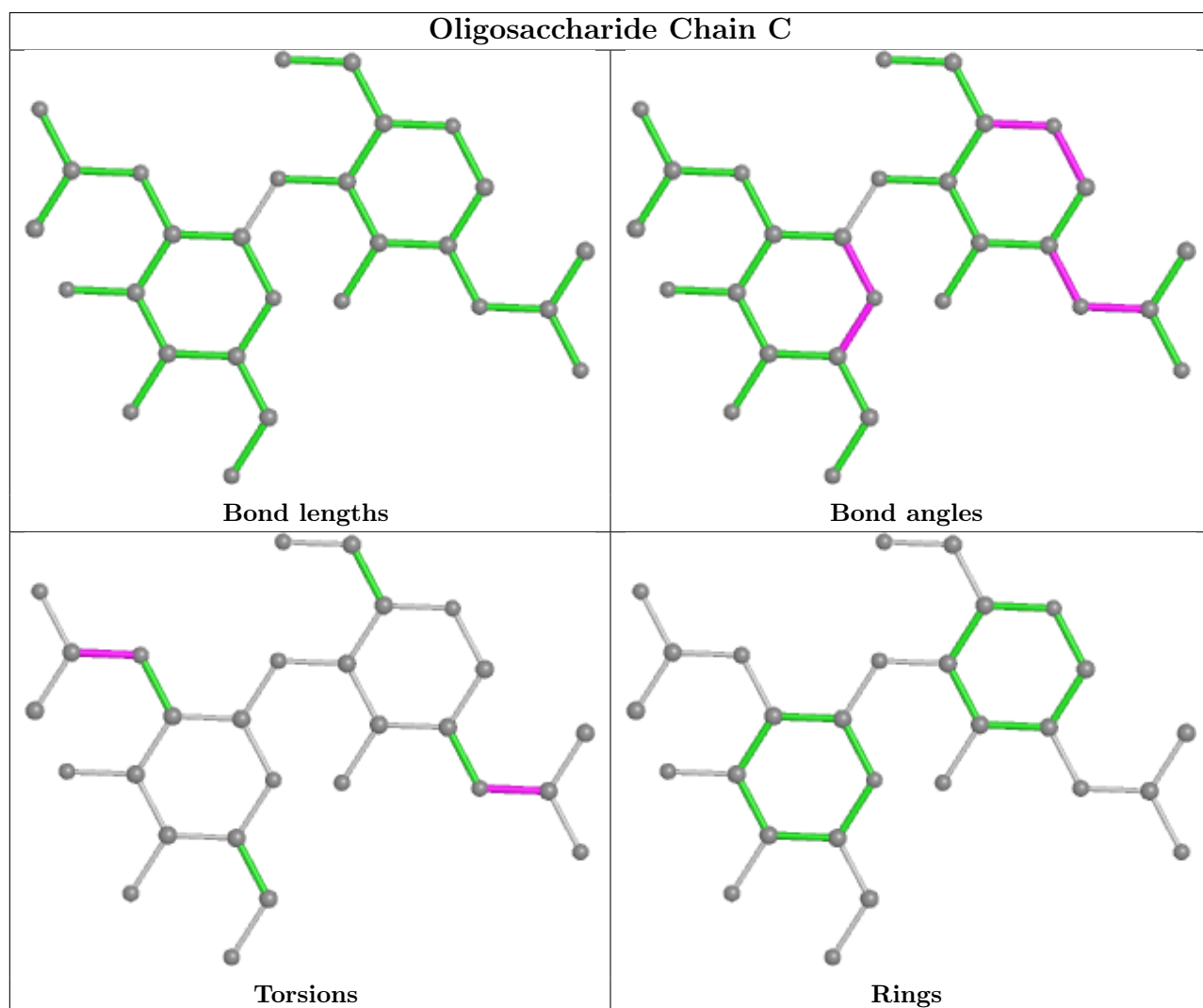
Mol	Chain	Res	Type	Atoms
3	C	2	NAG	C8-C7-N2-C2
3	C	2	NAG	O7-C7-N2-C2
3	D	2	NAG	C8-C7-N2-C2
3	D	2	NAG	O7-C7-N2-C2
3	C	1	NAG	C8-C7-N2-C2

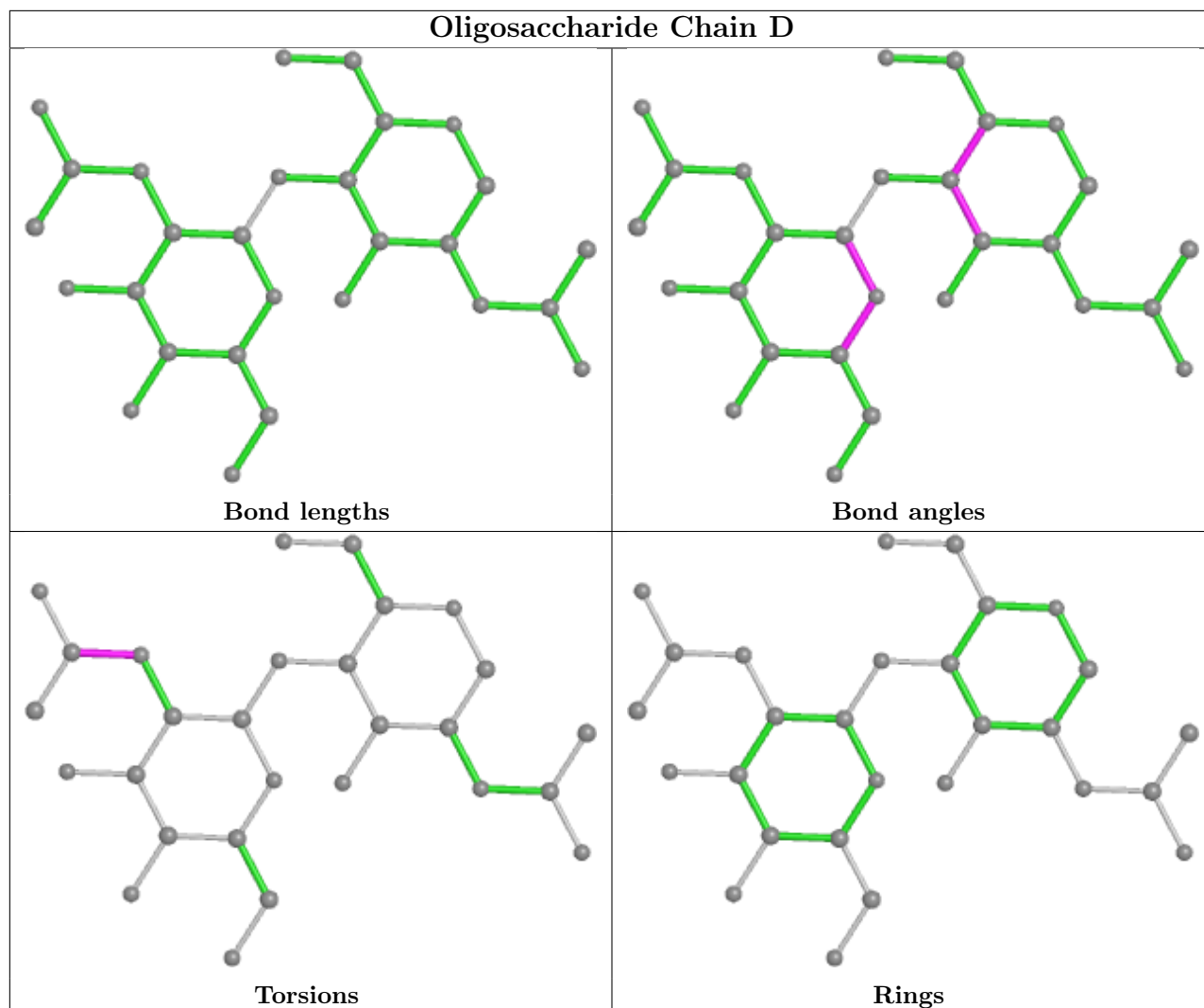
There are no ring outliers.

2 monomers are involved in 5 short contacts:

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

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





5.6 Ligand geometry [i](#)

Of 11 ligands modelled in this entry, 9 are monoatomic - leaving 2 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
5	NAG	B	1681	1	14,14,15	0.74	0	17,19,21	1.17	1 (5%)
5	NAG	A	1682	1	14,14,15	0.68	0	17,19,21	1.09	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
5	NAG	B	1681	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1682	1	-	2/6/23/26	0/1/1/1

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	B	1681	NAG	C1-O5-C5	2.21	115.19	112.19

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	1682	NAG	C8-C7-N2-C2
5	A	1682	NAG	O7-C7-N2-C2
5	B	1681	NAG	C8-C7-N2-C2
5	B	1681	NAG	O7-C7-N2-C2

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	1622/1676 (96%)	-0.10	36 (2%) 62 45	60, 136, 275, 372	0
1	B	1478/1676 (88%)	-0.19	13 (0%) 84 73	61, 129, 232, 340	0
2	X	191/231 (82%)	0.28	19 (9%) 7 4	150, 242, 308, 342	0
2	Y	191/231 (82%)	0.29	15 (7%) 12 7	149, 242, 308, 342	0
All	All	3482/3814 (91%)	-0.10	83 (2%) 59 42	60, 140, 279, 372	0

The worst 5 of 83 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	1594	LYS	9.7
1	A	1593	GLU	8.6
1	A	1542	THR	6.8
1	A	1630	ASN	5.4
1	A	1522	GLY	5.4

6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

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

6.3 Carbohydrates [i](#)

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.

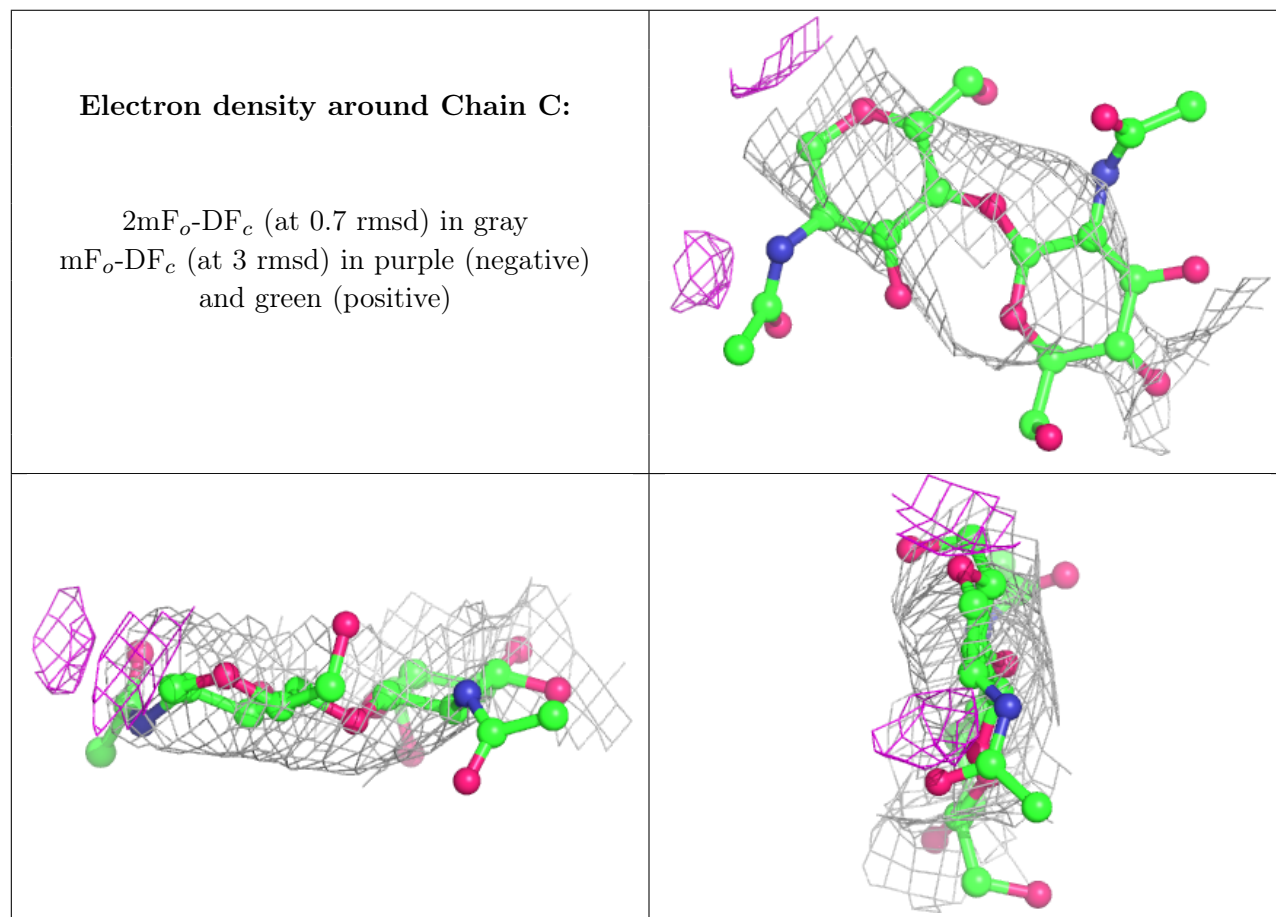
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
3	NAG	C	2	14/15	0.81	0.35	302,303,305,305	0
3	NAG	C	1	14/15	0.82	0.47	304,306,310,312	0

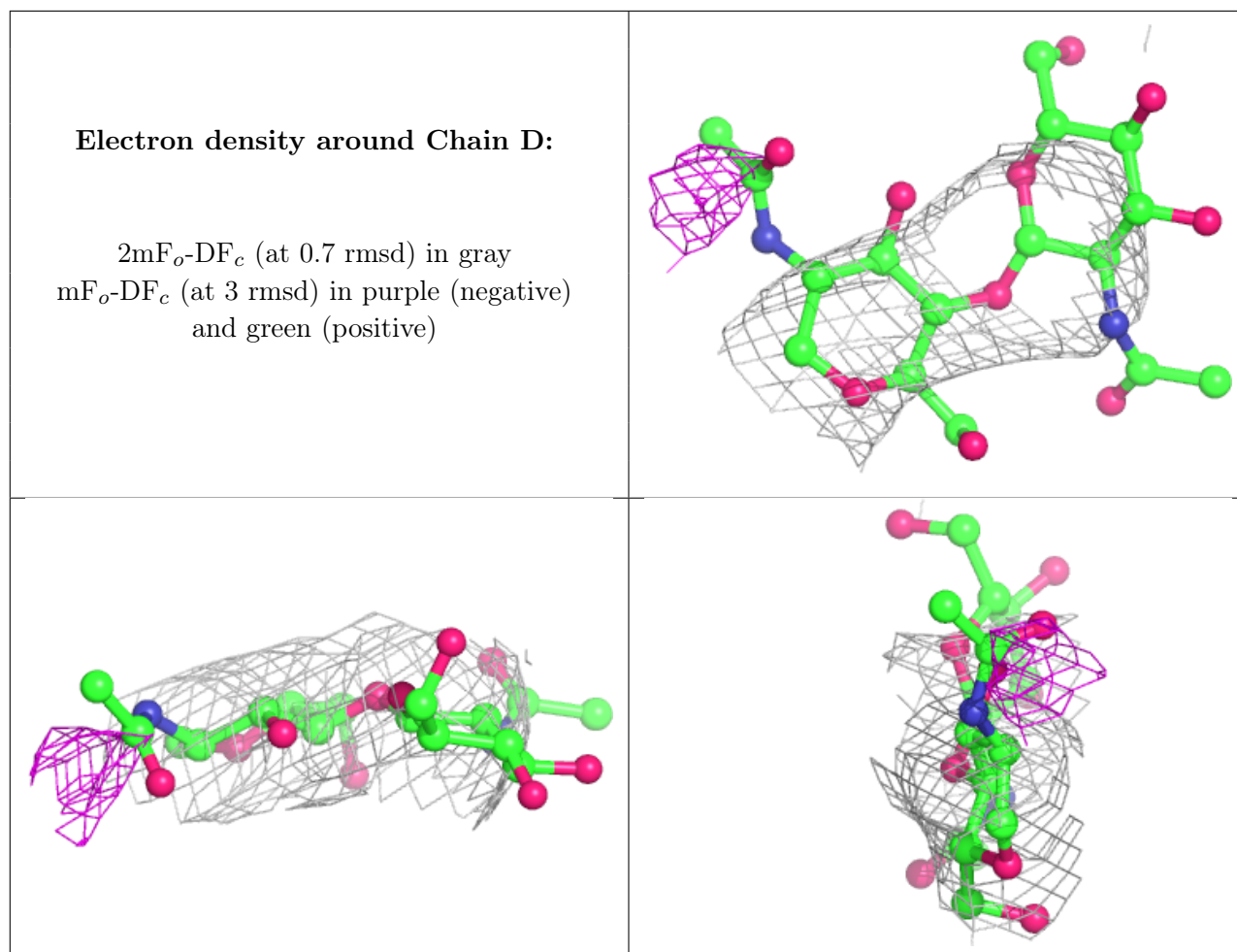
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
3	NAG	D	1	14/15	0.84	0.49	315,318,321,323	0
3	NAG	D	2	14/15	0.84	0.28	309,312,314,314	0

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





6.4 Ligands [i](#)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
4	CD	B	1678	1/1	0.39	0.09	271,271,271,271	0
4	CD	A	1681	1/1	0.64	0.15	263,263,263,263	0
5	NAG	A	1682	14/15	0.65	0.58	285,301,311,313	0
4	CD	B	1680	1/1	0.67	0.13	252,252,252,252	0
4	CD	A	1680	1/1	0.81	0.10	241,241,241,241	0
5	NAG	B	1681	14/15	0.81	0.36	268,294,323,333	0
4	CD	A	1679	1/1	0.91	0.08	270,270,270,270	0
4	CD	A	1678	1/1	0.93	0.07	261,261,261,261	0
4	CD	B	1677	1/1	0.93	0.06	255,255,255,255	0
4	CD	B	1679	1/1	0.95	0.12	240,240,240,240	0
4	CD	A	1677	1/1	0.96	0.42	137,137,137,137	1

6.5 Other polymers [i](#)

There are no such residues in this entry.