



Full wwPDB EM Validation Report ⓘ

Dec 18, 2022 – 06:57 am GMT

PDB ID : 7A5O
EMDB ID : EMD-10517
Title : Human MUC2 AAs 21-1397
Authors : Javitt, G.; Khmelnsky, L.; Albert, L.; Elad, N.; Ilani, T.; Diskin, R.; Fass, D.
Deposited on : 2020-08-21
Resolution : 2.95 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

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A user guide is available at

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

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:

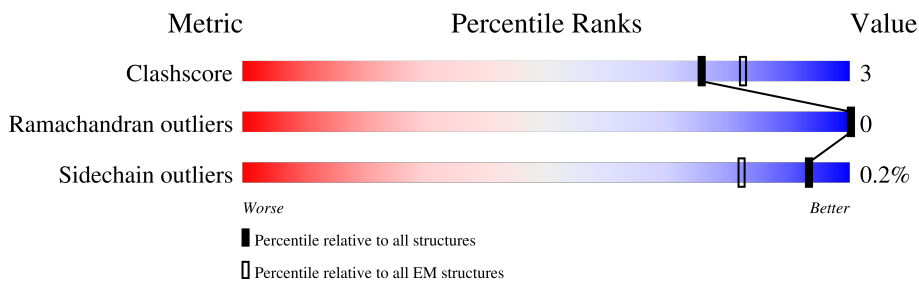
EMDB validation analysis : 0.0.1.dev43
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.3

1 Overall quality at a glance

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 2.95 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)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the 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 EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	1383	
1	B	1383	
1	C	1383	
1	D	1383	
1	E	1383	
1	F	1383	
1	G	1383	
1	H	1383	

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Mol	Chain	Length	Quality of chain
1	I	1383	
1	J	1383	
2	K	2	
2	L	2	
2	M	2	
2	N	2	
2	O	2	
2	P	2	

2 Entry composition i

There are 5 unique types of molecules in this entry. The entry contains 55254 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 Mucin-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1205	9125	5668	1579	1760	118	4	0
1	B	708	5276	3278	918	1013	67	3	0
1	C	1115	8429	5239	1459	1622	109	4	0
1	D	497	3849	2390	661	747	51	1	0
1	E	1205	9125	5668	1579	1760	118	4	0
1	F	90	696	429	120	138	9	0	0
1	G	1115	8429	5239	1459	1622	109	4	0
1	H	497	3849	2390	661	747	51	1	0
1	I	708	5276	3278	918	1013	67	3	0
1	J	90	696	429	120	138	9	0	0

There are 70 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1325	THR	PRO	conflict	UNP Q02817
A	1398	HIS	-	expression tag	UNP Q02817
A	1399	HIS	-	expression tag	UNP Q02817
A	1400	HIS	-	expression tag	UNP Q02817
A	1401	HIS	-	expression tag	UNP Q02817
A	1402	HIS	-	expression tag	UNP Q02817
A	1403	HIS	-	expression tag	UNP Q02817
B	1325	THR	PRO	conflict	UNP Q02817
B	1398	HIS	-	expression tag	UNP Q02817
B	1399	HIS	-	expression tag	UNP Q02817

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Chain	Residue	Modelled	Actual	Comment	Reference
B	1400	HIS	-	expression tag	UNP Q02817
B	1401	HIS	-	expression tag	UNP Q02817
B	1402	HIS	-	expression tag	UNP Q02817
B	1403	HIS	-	expression tag	UNP Q02817
C	1325	THR	PRO	conflict	UNP Q02817
C	1398	HIS	-	expression tag	UNP Q02817
C	1399	HIS	-	expression tag	UNP Q02817
C	1400	HIS	-	expression tag	UNP Q02817
C	1401	HIS	-	expression tag	UNP Q02817
C	1402	HIS	-	expression tag	UNP Q02817
C	1403	HIS	-	expression tag	UNP Q02817
D	1325	THR	PRO	conflict	UNP Q02817
D	1398	HIS	-	expression tag	UNP Q02817
D	1399	HIS	-	expression tag	UNP Q02817
D	1400	HIS	-	expression tag	UNP Q02817
D	1401	HIS	-	expression tag	UNP Q02817
D	1402	HIS	-	expression tag	UNP Q02817
D	1403	HIS	-	expression tag	UNP Q02817
E	1325	THR	PRO	conflict	UNP Q02817
E	1398	HIS	-	expression tag	UNP Q02817
E	1399	HIS	-	expression tag	UNP Q02817
E	1400	HIS	-	expression tag	UNP Q02817
E	1401	HIS	-	expression tag	UNP Q02817
E	1402	HIS	-	expression tag	UNP Q02817
E	1403	HIS	-	expression tag	UNP Q02817
F	1325	THR	PRO	conflict	UNP Q02817
F	1398	HIS	-	expression tag	UNP Q02817
F	1399	HIS	-	expression tag	UNP Q02817
F	1400	HIS	-	expression tag	UNP Q02817
F	1401	HIS	-	expression tag	UNP Q02817
F	1402	HIS	-	expression tag	UNP Q02817
F	1403	HIS	-	expression tag	UNP Q02817
G	1325	THR	PRO	conflict	UNP Q02817
G	1398	HIS	-	expression tag	UNP Q02817
G	1399	HIS	-	expression tag	UNP Q02817
G	1400	HIS	-	expression tag	UNP Q02817
G	1401	HIS	-	expression tag	UNP Q02817
G	1402	HIS	-	expression tag	UNP Q02817
G	1403	HIS	-	expression tag	UNP Q02817
H	1325	THR	PRO	conflict	UNP Q02817
H	1398	HIS	-	expression tag	UNP Q02817
H	1399	HIS	-	expression tag	UNP Q02817

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Chain	Residue	Modelled	Actual	Comment	Reference
H	1400	HIS	-	expression tag	UNP Q02817
H	1401	HIS	-	expression tag	UNP Q02817
H	1402	HIS	-	expression tag	UNP Q02817
H	1403	HIS	-	expression tag	UNP Q02817
I	1325	THR	PRO	conflict	UNP Q02817
I	1398	HIS	-	expression tag	UNP Q02817
I	1399	HIS	-	expression tag	UNP Q02817
I	1400	HIS	-	expression tag	UNP Q02817
I	1401	HIS	-	expression tag	UNP Q02817
I	1402	HIS	-	expression tag	UNP Q02817
I	1403	HIS	-	expression tag	UNP Q02817
J	1325	THR	PRO	conflict	UNP Q02817
J	1398	HIS	-	expression tag	UNP Q02817
J	1399	HIS	-	expression tag	UNP Q02817
J	1400	HIS	-	expression tag	UNP Q02817
J	1401	HIS	-	expression tag	UNP Q02817
J	1402	HIS	-	expression tag	UNP Q02817
J	1403	HIS	-	expression tag	UNP Q02817

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

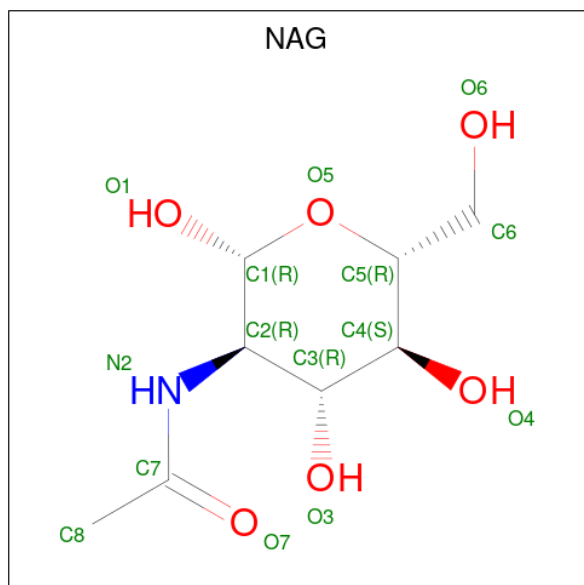


Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
2	K	2	28	16	2	10	0	0
2	L	2	28	16	2	10	0	0
2	M	2	28	16	2	10	0	0
2	N	2	28	16	2	10	0	0
2	O	2	28	16	2	10	0	0
2	P	2	28	16	2	10	0	0

- Molecule 3 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		AltConf
3	A	5	Total	Ca	0
			5	5	
3	B	2	Total	Ca	0
			2	2	
3	C	3	Total	Ca	0
			3	3	
3	D	3	Total	Ca	0
			3	3	
3	E	5	Total	Ca	0
			5	5	
3	F	2	Total	Ca	0
			2	2	
3	G	3	Total	Ca	0
			3	3	
3	H	3	Total	Ca	0
			3	3	
3	I	2	Total	Ca	0
			2	2	
3	J	2	Total	Ca	0
			2	2	

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



Mol	Chain	Residues	Atoms				AltConf
4	A	1	Total	C	N	O	0
			28	16	2	10	

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Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
4	A	1	Total 28	C 16	N 2	O 10	0
4	B	1	Total 28	C 16	N 2	O 10	0
4	B	1	Total 28	C 16	N 2	O 10	0
4	C	1	Total 28	C 16	N 2	O 10	0
4	C	1	Total 28	C 16	N 2	O 10	0
4	E	1	Total 28	C 16	N 2	O 10	0
4	E	1	Total 28	C 16	N 2	O 10	0
4	G	1	Total 28	C 16	N 2	O 10	0
4	G	1	Total 28	C 16	N 2	O 10	0
4	I	1	Total 28	C 16	N 2	O 10	0
4	I	1	Total 28	C 16	N 2	O 10	0

- Molecule 5 is water.

Mol	Chain	Residues	Atoms		AltConf
5	A	23	Total 23	O 23	0
5	B	10	Total 10	O 10	0
5	C	22	Total 22	O 22	0
5	D	13	Total 13	O 13	0
5	E	23	Total 23	O 23	0
5	F	1	Total 1	O 1	0
5	G	22	Total 22	O 22	0
5	H	13	Total 13	O 13	0

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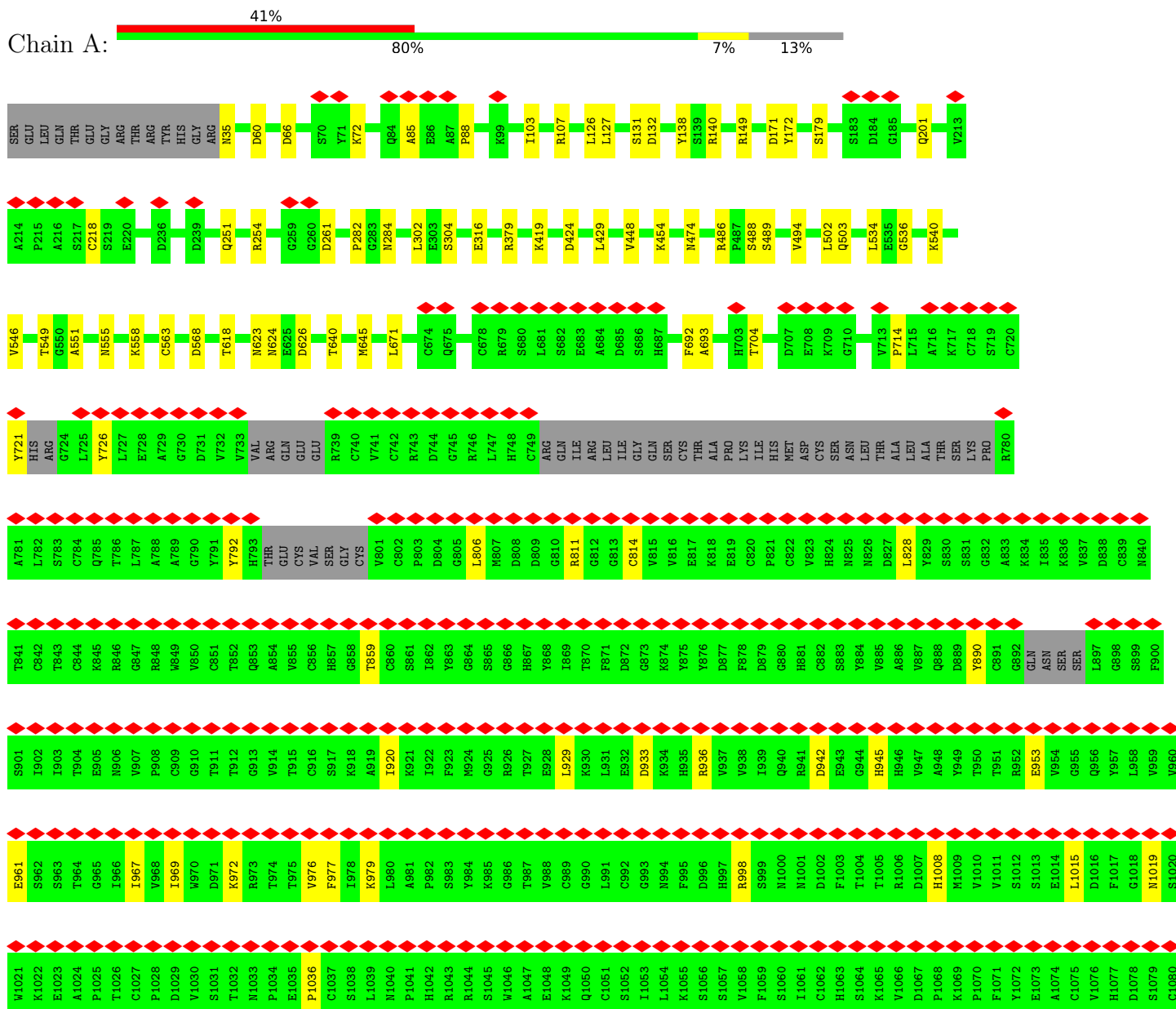
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Mol	Chain	Residues	Atoms	AltConf
5	I	10	Total O 10 10	0
5	J	1	Total O 1 1	0

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 atom inclusion in map 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 diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). 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: Mucin-2



D261	C321	V381	Q441	R501	S611	C621	L681	W741	W801	S861	K921	A981
T262	E322	C382	T442	L502	T562	Q622	S682	C742	C802	I662	I922	P982
C263	E323	K383	C443	Q503	C563	N623	E683	R743	P803	Y863	F923	S983
V264	H324	D384	L444	V504	H644	N624	A684	D744	D804	G864	H924	Y984
C265	R325	L385	K445	Q505	D565	D625	D685	G745	S805	S865	G925	K985
S266	M326	P386	T446	L506	K566	D626	S686	R746	L806	G866	R926	G986
T267	D327	C387	V447	A507	L567	C627	H687	L747	M807	H867	T927	T987
V268	G328	P388	V448	P508	D568	L628	C688	H748	D808	Y868	E928	V988
A269	C329	G389	L449	V509	W569	C629	L689	C749	D809	I869	L929	C989
E270	F330	T390	L450	M510	L570	A630	L690	ARG	G810	T870	K930	G990
F271	C331	C391	A451	Q511	D571	A631	G691	ILE	R811	F871	L931	L991
S272	P332	A392	D452	L512	D572	L632	F692	ARG	G812	D872	E932	C992
R273	E333	L393	K453	F513	P573	S633	A693	LEU	S813	G873	D933	G993
Q274	G334	E394	K454	V514	C574	S634	P694	ILE	C814	K874	K934	N994
C275	T335	G395	K455	T515	S575	Y635	V695	GLY	W815	Y875	H935	F995
S276	V336	G396	M456	L516	L576	A636	D696	SER	W816	Y876	R936	D996
H277	Y337	S397	A457	D517	N577	R637	G697	CYS	E817	D877	Y937	H997
A278	D338	H398	V458	Q518	I578	A638	C698	THR	K818	F878	V938	V998
G279	D339	I399	V459	A519	E579	C639	G699	ALA	E819	D879	I939	S999
G280	I340	T400	F460	S520	S580	T640	C700	LYS	C820	G880	Q940	N1000
R281	G941	F401	K461	Q521	A821	A641	P701	ILE	P821	H881	R941	N1001
P282	D942	F402	S462	G522	N582	K642	D702	HIS	C822	C882	D942	D1002
G283	S943	D403	D463	Q523	Y583	G643	H703	MET	W823	S883	E943	F1003
N284	G944	G404	G464	V524	A584	V644	T704	CYS	H824	Y884	T944	T1004
W285	C945	K405	S465	Q525	E585	M645	F705	ASN	N825	Y885	H945	T1005
R286	V946	T406	V466	G526	H586	L646	L706	SER	M826	Y886	H946	R1006
T287	P947	Y407	L467	L527	W587	W647	D707	LEU	D827	Y887	Y947	D1007
A288	V948	T408	L468	C528	C588	G648	E708	ALA	L828	Q888	A948	H1008
T289	S949	F409	M469	G529	S589	W649	K709	ALA	Y829	D889	Y949	M1009
L290	Q350	H410	Q470	N530	L590	R650	G710	THR	S830	Y890	T950	V1010
C291	C351	G411	L471	F531	L591	E651	R711	SER	S831	C891	T951	V1011
P292	H352	D412	Q472	N532	K592	H652	C712	LYS	G832	G892	R952	S1012
K293	C353	C413	V473	G533	K593	V653	V713	PRO	A833	G893	E953	S1013
T294	R354	Y414	M474	L534	T594	C654	P714	R780	K834	ASN	V954	E1014
C295	L355	Y415	L475	E535	E595	M655	L715	A781	I835	SER	G955	L1015
P296	H356	V416	P476	G536	T596	K656	A716	L782	K836	SER	Q956	D1016
G297	G357	L417	H477	D537	P597	D657	K717	S783	W837	L897	F957	F1017
N298	H358	A418	V478	D538	F598	W658	C718	C784	D838	G898	L958	G1018
L299	L359	L419	T479	F539	G599	G659	S719	Q785	C839	F900	Y959	N1019
V300	Y360	K420	T479	K540	R600	S660	C720	T786	M840	S901	V960	S1020
Y301	T361	D421	S481	T541	C601	C661	Y721	L787	T841	I902	E961	W1021
L302	P362	H422	F482	A542	H602	P662	HIS	A788	C842	C903	S962	K1022
E303	G363	M423	S483	S543	S603	M663	ARG	A789	T843	T904	S963	E1023
S304	Q364	D424	V484	G544	A604	S664	G724	C790	C844	E905	T964	A1024
G305	E365	S425	F485	L545	V605	Q665	L725	Y791	K845	K845	G965	P1025
S306	I366	Y426	R486	V546	D606	V666	Y726	Y792	R846	V907	I966	T1026
P307	T367	A427	P487	E547	P607	F667	L727	H793	G847	F908	I967	C1027
C308	N368	L428	S488	A548	A608	L668	E728	THR	R848	C909	V968	P1028
M309	D369	L429	S489	T549	E609	Y669	A729	CYS	W849	G910	I969	D1029
D310	G370	L430	Y490	G550	Y610	N670	G730	VAL	H850	V911	W970	P1030
T311	E371	E431	H491	A551	Y611	L671	D731	SER	C851	T912	D971	S1031
C312	Q372	L432	I492	G552	K612	T672	V732	GLY	T852	G913	K972	T1032
S313	C373	A433	M493	F553	R613	G673	VAL	CYS	K853	V914	R973	N1033
H314	V374	P434	V494	A554	C614	T674	ARG	THR	A854	T915	T974	P1034
L315	C375	C435	S495	N555	K615	Q675	GLN	GLY	W855	V916	T975	E1035
E316	N376	G436	M496	T556	Y616	Q676	GLU	GLU	C856	C916	Y976	P1036
V317	A377	S437	A497	W557	D617	T677	R739	R739	H857	H857	F977	C1037
G318	G378	T438	I498	K558	T618	G678	C740	C740	C858	C858	L978	S1038
S319	R379	D439	G499	A559	C619	R679	C860	C860	T859	T859	K979	L1039
L320	W380	K440	V500	Q560	N620	S680	C740	C740	C860	C860	L980	N1040

VAL	V741	L681	C621	S561	R501	Q441	V381	C321	D261	Q201	A141	G81	SER
CYS	C742	S682	Q622	T662	L502	T442	C382	E322	T262	P202	G142	P82	GLU
PRO	R743	E683	M623	C563	Q503	K443	K383	E323	C263	D203	G143	883	LEU
ASP	D744	A684	M624	H664	V504	L444	D384	H324	V264	V204	T144	084	THR
LEU	G745	D685	E625	D665	Q505	K445	L385	R325	C265	C205	M145	A85	GLU
MET	R746	S686	D626	K666	L506	T446	P386	M326	S266	C206	M146	E86	GLY
ASP	L747	H687	C627	L667	A507	V447	C387	D327	T267	E207	W147	A87	ARG
ARG	H748	C688	L628	D568	P508	V448	P388	G328	V268	D208	M148	P88	THR
GLY	C749	L689	C629	W569	V509	L449	G389	C329	A269	P209	R149	A89	TYR
GLY	E690	L570	A630	L570	M510	L450	T390	F330	E270	E210	E150	G90	HIS
CYS	G691	D571	A631	D571	Q511	A651	C391	C331	F271	E211	D151	V91	GLY
VAL	F692	D572	L632	D572	L512	A652	A392	P332	S272	E212	A152	E92	ARG
VAL	A693	P573	S633	P573	F513	K653	L393	E333	R273	V213	M154	S93	LEU
ILE	P694	C574	S634	C574	V514	K454	E394	G334	Q274	A214	M154	I94	LEU
LYS	V695	S575	Y635	S575	T515	K465	G395	T335	Q275	P215	L155	I95	GLY
GLY	V696	L576	A636	L576	L516	M466	G396	V336	S276	A216	E156	L96	GLN
CYS	D696	N577	R637	N577	D517	A467	S397	V337	H277	A217	E157	T97	CYS
PRO	G697	I578	A638	I578	Q518	V468	H398	D338	A278	C218	D158	I98	THR
VAL	C698	E579	C639	E579	A519	V469	I399	D339	G279	S219	T159	I99	ALA
HIS	G699	S680	T640	S680	A520	F460	T400	I340	G280	E220	K160	F43	PRO
ASN	C700	A681	A641	A681	Q521	K461	T401	G342	R281	H221	F161	D101	ASN
ASP	P701	N682	K642	N682	Q522	S462	F402	D342	P282	R222	R162	T102	ASP
LEU	D702	Y683	G643	Y683	Q523	D463	D403	S343	G283	A223	M163	I103	LEU
MET	H703	A684	V644	A684	V524	A464	G404	G344	N284	E224	H164	I104	MET
ASP	T704	E685	M645	E685	Q525	S465	K405	C345	W285	E225	T165	I105	ASP
CYS	F705	H686	L646	H686	G526	V466	T406	V346	R286	E226	H166	I106	CYS
SER	L706	W687	L647	W687	L527	L467	Y407	P347	T287	R227	G167	R107	SER
ASN	D707	C688	G648	C688	C528	L468	T408	V348	A288	L228	L168	H108	ASN
LEU	E708	S689	W649	S689	G529	M469	F409	S349	T289	L229	C169	L109	LEU
LEU	K709	R650	R650	R650	N530	Q470	H410	Q350	L290	T230	G170	A110	LEU
VAL	G710	E651	R651	E651	F531	L471	G411	C351	C291	A231	D171	V111	VAL
ASP	R711	K652	H652	K652	N532	Q472	D412	H352	P292	E232	Y172	L112	ASP
CYS	T712	G653	V653	G653	G533	V473	C413	C353	K293	A233	M173	M113	CYS
THR	P713	T594	L534	T594	L534	M474	Y414	R354	T294	F234	G174	G114	THR
CYS	L715	E595	E535	E595	E535	L475	Y415	L355	C295	A235	A115	A115	CYS
LYS	A716	T596	G536	T596	G536	V476	V416	H356	P296	D236	Q176	V116	LYS
ARG	C717	D537	D537	D537	D537	H477	L417	G357	G297	C237	Y177	V117	ARG
GLY	K718	D538	H478	D538	L418	V478	A418	H358	N298	Q238	Y178	S118	GLY
THR	C719	F599	F599	F599	F599	T479	K419	L359	L299	D239	S179	T119	THR
VAL	S719	K540	K540	K540	K540	A480	G420	Y360	V300	L240	E180	P120	VAL
CYS	C720	T541	S461	T541	S461	S461	D421	T361	F301	L241	F181	H121	CYS
THR	Y721	A542	F482	A542	F482	M423	H422	P362	L302	P242	L182	Y122	THR
GLN	HIS	S543	S463	S543	S463	S463	M423	G363	E303	L243	S183	S123	GLN
ARG	ARG	A604	V484	A604	V484	V484	D424	Q364	S304	E244	D184	P124	ARG
THR	G724	V605	F485	V605	F485	F485	S425	E365	G305	P245	G185	G126	THR
CYS	Y726	D606	R486	D606	V546	R486	Y426	I366	S306	Y246	V186	L126	CYS
VAL	L727	E547	P487	E547	V546	P487	A427	T367	P307	L247	L187	L127	VAL
THR	E728	A548	S488	A548	S488	S488	L428	N368	C308	R248	F188	I128	THR
SER	A729	T549	S489	T549	S489	S489	L429	D369	H309	A249	S189	E129	SER
GLY	G730	G550	Y490	G550	Y490	Y490	G430	C370	D310	C250	E190	K130	GLY
THR	D731	A551	H491	A551	H491	H491	E431	E371	T311	Q251	L191	S131	THR
CYS	V732	G552	I492	G552	I492	I492	L432	Q372	C312	D252	E192	D132	CYS
VAL	V733	F553	M493	F553	M493	M493	A433	C373	S313	D253	F193	A133	VAL
ARG	ARG	A554	V494	A554	V494	V494	P434	V374	H314	R254	G194	Y134	ARG
GLN	GLN	N555	S495	N555	S495	S495	C435	C375	L315	C255	M195	T135	GLN
GLU	GLU	T556	M496	T556	M496	M496	A436	N376	L316	R256	M196	K136	GLU
GLU	R739	W557	A497	W557	A497	A497	S437	A377	E316	C257	Q197	Y137	GLU
THR	C740	T618	I498	T618	I498	I498	T438	G378	W317	P258	Q198	Y138	THR
CYS		C619	G499	C619	G499	G499	D439	R379	S319	G259	I199	S139	CYS
		N620	V500	N620	V500	V500	K440	W380	L320	G260	N200	R140	

Chain L:  50% 50%



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

Chain M:  50% 50%



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

Chain N:  50% 100% 50%



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

Chain O:  50% 100% 50%



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

Chain P:  50% 100% 50%



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C2	Depositor
Number of particles used	178136	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	48	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	2.714	Depositor
Minimum map value	-1.867	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.037	Depositor
Recommended contour level	0.17	Depositor
Map size (Å)	340.0, 340.0, 340.0	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.85, 0.85, 0.85	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: CA, 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	0.39	0/9358	0.61	0/12718
1	B	0.35	0/5406	0.61	0/7355
1	C	0.40	0/8643	0.62	0/11748
1	D	0.44	0/3952	0.62	0/5363
1	E	0.39	0/9358	0.62	0/12718
1	F	0.31	0/715	0.56	0/970
1	G	0.40	0/8643	0.62	0/11748
1	H	0.44	0/3952	0.62	0/5363
1	I	0.35	0/5406	0.61	0/7355
1	J	0.31	0/715	0.56	0/970
All	All	0.39	0/56148	0.61	0/76308

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	2
1	B	0	1
1	C	0	2
1	D	0	1
1	E	0	2
1	G	0	2
1	H	0	1
1	I	0	1
All	All	0	12

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (12) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	1126	PRO	Peptide
1	A	424	ASP	Peptide
1	B	424	ASP	Peptide
1	C	1126	PRO	Peptide
1	C	424	ASP	Peptide
1	D	1126	PRO	Peptide
1	E	1126	PRO	Peptide
1	E	424	ASP	Peptide
1	G	1126	PRO	Peptide
1	G	424	ASP	Peptide
1	H	1126	PRO	Peptide
1	I	424	ASP	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	9125	0	8366	61	0
1	B	5276	0	4839	35	0
1	C	8429	0	7755	61	0
1	D	3849	0	3527	20	0
1	E	9125	0	8366	63	0
1	F	696	0	611	3	0
1	G	8429	0	7755	61	0
1	H	3849	0	3527	20	0
1	I	5276	0	4839	35	0
1	J	696	0	611	3	0
2	K	28	0	25	0	0
2	L	28	0	25	0	0
2	M	28	0	25	0	0
2	N	28	0	25	0	0
2	O	28	0	25	0	0
2	P	28	0	25	0	0
3	A	5	0	0	0	0
3	B	2	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	C	3	0	0	0	0
3	D	3	0	0	0	0
3	E	5	0	0	0	0
3	F	2	0	0	0	0
3	G	3	0	0	0	0
3	H	3	0	0	0	0
3	I	2	0	0	0	0
3	J	2	0	0	0	0
4	A	28	0	26	0	0
4	B	28	0	26	0	0
4	C	28	0	26	0	0
4	E	28	0	26	0	0
4	G	28	0	26	0	0
4	I	28	0	26	0	0
5	A	23	0	0	0	0
5	B	10	0	0	0	0
5	C	22	0	0	0	0
5	D	13	0	0	0	0
5	E	23	0	0	0	0
5	F	1	0	0	0	0
5	G	22	0	0	0	0
5	H	13	0	0	0	0
5	I	10	0	0	0	0
5	J	1	0	0	0	0
All	All	55254	0	50502	322	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 3.

All (322) 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:35:ASN:N	1:C:172:TYR:HH	1.66	0.93
1:G:35:ASN:N	1:G:172:TYR:HH	1.66	0.92
1:E:474:ASN:ND2	1:G:474:ASN:ND2	2.18	0.91
1:A:474:ASN:ND2	1:C:474:ASN:ND2	2.18	0.91
1:A:35:ASN:N	1:A:172:TYR:HH	1.71	0.89
1:E:35:ASN:N	1:E:172:TYR:HH	1.71	0.88
1:I:35:ASN:N	1:I:172:TYR:HH	1.73	0.87
1:B:35:ASN:N	1:B:172:TYR:HH	1.73	0.87
1:E:474:ASN:HD21	1:G:474:ASN:ND2	1.78	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:474:ASN:ND2	1:C:474:ASN:HD21	1.77	0.78
1:A:474:ASN:CG	1:C:474:ASN:HD21	1.86	0.78
1:E:474:ASN:HD21	1:G:474:ASN:CG	1.86	0.78
1:E:60:ASP:OD2	1:E:201:GLN:NE2	2.21	0.73
1:B:60:ASP:OD2	1:B:201:GLN:NE2	2.22	0.72
1:A:60:ASP:OD2	1:A:201:GLN:NE2	2.21	0.72
1:C:60:ASP:OD2	1:C:201:GLN:NE2	2.21	0.72
1:I:60:ASP:OD2	1:I:201:GLN:NE2	2.22	0.72
1:G:60:ASP:OD2	1:G:201:GLN:NE2	2.22	0.71
1:E:474:ASN:CG	1:G:474:ASN:ND2	2.50	0.65
1:A:474:ASN:ND2	1:C:474:ASN:CG	2.50	0.65
1:G:618:THR:O	1:G:624:ASN:ND2	2.33	0.62
1:B:618:THR:O	1:B:624:ASN:ND2	2.33	0.62
1:C:618:THR:O	1:C:624:ASN:ND2	2.33	0.62
1:E:474:ASN:CG	1:G:474:ASN:HD21	2.04	0.61
1:I:618:THR:O	1:I:624:ASN:ND2	2.33	0.61
1:A:618:THR:O	1:A:624:ASN:ND2	2.33	0.61
1:E:618:THR:O	1:E:624:ASN:ND2	2.33	0.61
1:E:474:ASN:ND2	1:G:474:ASN:CG	2.50	0.60
1:A:474:ASN:HD21	1:C:474:ASN:CG	2.05	0.60
1:E:474:ASN:ND2	1:G:474:ASN:HD21	1.97	0.60
1:A:474:ASN:CG	1:C:474:ASN:ND2	2.51	0.60
1:A:474:ASN:HD21	1:C:474:ASN:ND2	1.98	0.60
1:G:640:THR:HG22	1:G:645:MET:HA	1.85	0.59
1:B:640:THR:HG22	1:B:645:MET:HA	1.85	0.59
1:A:640:THR:HG22	1:A:645:MET:HA	1.85	0.59
1:E:640:THR:HG22	1:E:645:MET:HA	1.85	0.59
1:C:640:THR:HG22	1:C:645:MET:HA	1.85	0.57
1:I:640:THR:HG22	1:I:645:MET:HA	1.85	0.57
1:I:623:ASN:ND2	1:I:626:ASP:OD2	2.38	0.57
1:A:623:ASN:ND2	1:A:626:ASP:OD2	2.38	0.57
1:E:623:ASN:ND2	1:E:626:ASP:OD2	2.38	0.57
1:G:623:ASN:ND2	1:G:626:ASP:OD2	2.38	0.57
1:B:623:ASN:ND2	1:B:626:ASP:OD2	2.38	0.56
1:A:929:LEU:HD22	1:A:936:ARG:HD3	1.88	0.56
1:C:218:CYS:O	1:C:251:GLN:NE2	2.39	0.56
1:D:929:LEU:HD22	1:D:936:ARG:HD3	1.88	0.56
1:C:623:ASN:ND2	1:C:626:ASP:OD2	2.38	0.56
1:C:929:LEU:HD22	1:C:936:ARG:HD3	1.88	0.55
1:H:929:LEU:HD22	1:H:936:ARG:HD3	1.88	0.55
1:B:218:CYS:O	1:B:251:GLN:NE2	2.40	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:218:CYS:O	1:E:251:GLN:NE2	2.39	0.55
1:A:558:LYS:HD2	1:A:563:CYS:HB2	1.89	0.55
1:G:558:LYS:HD2	1:G:563:CYS:HB2	1.89	0.55
1:A:218:CYS:O	1:A:251:GLN:NE2	2.39	0.55
1:B:254:ARG:NH1	1:B:261:ASP:OD1	2.40	0.55
1:C:254:ARG:NH1	1:C:261:ASP:OD1	2.40	0.55
1:I:218:CYS:O	1:I:251:GLN:NE2	2.40	0.55
1:I:254:ARG:NH1	1:I:261:ASP:OD1	2.40	0.55
1:E:929:LEU:HD22	1:E:936:ARG:HD3	1.88	0.55
1:G:929:LEU:HD22	1:G:936:ARG:HD3	1.88	0.54
1:G:218:CYS:O	1:G:251:GLN:NE2	2.40	0.54
1:H:1353:GLN:NE2	1:H:1378:LEU:O	2.41	0.54
1:E:558:LYS:HD2	1:E:563:CYS:HB2	1.89	0.54
1:E:1353:GLN:NE2	1:E:1378:LEU:O	2.41	0.54
1:G:254:ARG:NH1	1:G:261:ASP:OD1	2.40	0.54
1:I:558:LYS:HD2	1:I:563:CYS:HB2	1.89	0.54
1:D:1353:GLN:NE2	1:D:1378:LEU:O	2.41	0.54
1:E:254:ARG:NH1	1:E:261:ASP:OD1	2.40	0.54
1:J:1353:GLN:NE2	1:J:1378:LEU:O	2.41	0.54
1:C:558:LYS:HD2	1:C:563:CYS:HB2	1.89	0.54
1:A:1353:GLN:NE2	1:A:1378:LEU:O	2.41	0.54
1:I:551:ALA:O	1:I:555:ASN:ND2	2.41	0.54
1:A:254:ARG:NH1	1:A:261:ASP:OD1	2.40	0.53
1:B:558:LYS:HD2	1:B:563:CYS:HB2	1.89	0.53
1:F:1353:GLN:NE2	1:F:1378:LEU:O	2.41	0.53
1:A:551:ALA:O	1:A:555:ASN:ND2	2.41	0.53
1:B:704:THR:HA	1:B:714:PRO:HA	1.90	0.53
1:E:551:ALA:O	1:E:555:ASN:ND2	2.41	0.53
1:B:551:ALA:O	1:B:555:ASN:ND2	2.41	0.53
1:C:551:ALA:O	1:C:555:ASN:ND2	2.41	0.53
1:E:103:ILE:HD11	1:E:126:LEU:HD21	1.91	0.53
1:G:551:ALA:O	1:G:555:ASN:ND2	2.41	0.53
1:E:721:TYR:HA	1:E:726:TYR:HA	1.91	0.53
1:B:103:ILE:HD11	1:B:126:LEU:HD21	1.91	0.52
1:E:704:THR:HA	1:E:714:PRO:HA	1.91	0.52
1:I:721:TYR:HA	1:I:726:TYR:HA	1.91	0.52
1:A:704:THR:HA	1:A:714:PRO:HA	1.91	0.52
1:C:704:THR:HA	1:C:714:PRO:HA	1.91	0.52
1:G:103:ILE:HD11	1:G:126:LEU:HD21	1.91	0.52
1:G:704:THR:HA	1:G:714:PRO:HA	1.91	0.52
1:E:811:ARG:HH21	1:E:828:LEU:HG	1.75	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:704:THR:HA	1:I:714:PRO:HA	1.91	0.52
1:A:140:ARG:NH1	1:C:933:ASP:OD2	2.43	0.52
1:A:721:TYR:HA	1:A:726:TYR:HA	1.91	0.52
1:I:103:ILE:HD11	1:I:126:LEU:HD21	1.91	0.52
1:A:811:ARG:HH21	1:A:828:LEU:HG	1.75	0.52
1:A:933:ASP:OD2	1:C:140:ARG:NH1	2.43	0.52
1:A:1366:LYS:O	1:A:1370:GLN:NE2	2.43	0.52
1:B:107[A]:ARG:HD2	1:B:149:ARG:HB3	1.92	0.52
1:C:103:ILE:HD11	1:C:126:LEU:HD21	1.91	0.52
1:C:721:TYR:HA	1:C:726:TYR:HA	1.91	0.52
1:H:811:ARG:HH21	1:H:828:LEU:HG	1.75	0.52
1:H:933:ASP:OD2	1:I:140:ARG:NH1	2.43	0.52
1:I:107[A]:ARG:HD2	1:I:149:ARG:HB3	1.92	0.52
1:A:107[A]:ARG:HD2	1:A:149:ARG:HB3	1.92	0.51
1:D:1366:LYS:O	1:D:1370:GLN:NE2	2.43	0.51
1:A:103:ILE:HD11	1:A:126:LEU:HD21	1.91	0.51
1:B:721:TYR:HA	1:B:726:TYR:HA	1.91	0.51
1:E:1366:LYS:O	1:E:1370:GLN:NE2	2.43	0.51
1:D:811:ARG:HH21	1:D:828:LEU:HG	1.75	0.51
1:B:140:ARG:NH1	1:D:933:ASP:OD2	2.43	0.51
1:E:107[A]:ARG:HD2	1:E:149:ARG:HB3	1.92	0.51
1:E:1015:LEU:O	1:E:1019:ASN:ND2	2.44	0.51
1:G:1015:LEU:O	1:G:1019:ASN:ND2	2.44	0.51
1:D:1015:LEU:O	1:D:1019:ASN:ND2	2.44	0.51
1:E:933:ASP:OD2	1:G:140:ARG:NH1	2.43	0.51
1:G:721:TYR:HA	1:G:726:TYR:HA	1.91	0.51
1:H:1015:LEU:O	1:H:1019:ASN:ND2	2.44	0.51
1:G:107[A]:ARG:HD2	1:G:149:ARG:HB3	1.92	0.50
1:C:107[A]:ARG:HD2	1:C:149:ARG:HB3	1.92	0.50
1:E:140:ARG:NH1	1:G:933:ASP:OD2	2.43	0.50
1:C:811:ARG:HH21	1:C:828:LEU:HG	1.75	0.50
1:C:1015:LEU:O	1:C:1019:ASN:ND2	2.44	0.50
1:D:859:THR:OG1	1:D:979:LYS:NZ	2.44	0.50
1:A:474:ASN:ND2	1:C:474:ASN:OD1	2.45	0.50
1:A:1015:LEU:O	1:A:1019:ASN:ND2	2.44	0.50
1:G:811:ARG:HH21	1:G:828:LEU:HG	1.75	0.50
1:A:379:ARG:HE	1:C:1008:HIS:CD2	2.31	0.49
1:D:942:ASP:OD2	1:D:945:HIS:HB3	2.13	0.49
1:D:1036:PRO:HB3	1:D:1081:SER:HB3	1.95	0.48
1:E:379:ARG:HE	1:G:1008:HIS:CD2	2.31	0.48
1:E:1008:HIS:CD2	1:G:379:ARG:HE	2.31	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:486:ARG:HE	1:G:489:SER:HA	1.78	0.48
1:B:379:ARG:HE	1:D:1008:HIS:CD2	2.31	0.48
1:B:486:ARG:HE	1:B:489:SER:HA	1.78	0.48
1:E:942:ASP:OD2	1:E:945:HIS:HB3	2.13	0.48
1:H:1036:PRO:HB3	1:H:1081:SER:HB3	1.95	0.48
1:F:1366:LYS:O	1:F:1370:GLN:NE2	2.46	0.48
1:G:942:ASP:OD2	1:G:945:HIS:HB3	2.13	0.48
1:H:942:ASP:OD2	1:H:945:HIS:HB3	2.13	0.48
1:H:1366:LYS:O	1:H:1370:GLN:NE2	2.46	0.48
1:C:486:ARG:HE	1:C:489:SER:HA	1.78	0.48
1:C:1036:PRO:HB3	1:C:1081:SER:HB3	1.95	0.48
1:E:486:ARG:HE	1:E:489:SER:HA	1.78	0.48
1:I:486:ARG:HE	1:I:489:SER:HA	1.79	0.48
1:A:942:ASP:OD2	1:A:945:HIS:HB3	2.13	0.48
1:C:942:ASP:OD2	1:C:945:HIS:HB3	2.13	0.48
1:J:1366:LYS:O	1:J:1370:GLN:NE2	2.46	0.48
1:A:1008:HIS:CD2	1:C:379:ARG:HE	2.31	0.48
1:A:1036:PRO:HB3	1:A:1081:SER:HB3	1.95	0.48
1:C:284:ASN:HD21	1:C:302:LEU:HA	1.79	0.48
1:E:859:THR:OG1	1:E:979:LYS:NZ	2.44	0.48
1:H:1008:HIS:CD2	1:I:379:ARG:HE	2.31	0.48
1:I:85:ALA:HB3	1:I:88:PRO:HD2	1.96	0.47
1:A:486:ARG:HE	1:A:489:SER:HA	1.79	0.47
1:E:284:ASN:HD21	1:E:302:LEU:HA	1.79	0.47
1:G:859:THR:OG1	1:G:979:LYS:NZ	2.44	0.47
1:A:284:ASN:HD21	1:A:302:LEU:HA	1.79	0.47
1:D:1150:GLY:O	1:D:1152:HIS:ND1	2.47	0.47
1:G:1036:PRO:HB3	1:G:1081:SER:HB3	1.95	0.47
1:E:1036:PRO:HB3	1:E:1081:SER:HB3	1.95	0.47
1:B:284:ASN:HD21	1:B:302:LEU:HA	1.79	0.47
1:G:85:ALA:HB3	1:G:88:PRO:HD2	1.96	0.47
1:G:284:ASN:HD21	1:G:302:LEU:HA	1.79	0.47
1:B:454:LYS:HZ1	1:D:792:TYR:HE1	1.62	0.47
1:E:961:GLU:HG3	1:E:967:ILE:HG12	1.97	0.47
1:B:85:ALA:HB3	1:B:88:PRO:HD2	1.96	0.47
1:C:961:GLU:HG3	1:C:967:ILE:HG12	1.97	0.47
1:G:503:GLN:HE21	1:G:692:PHE:HD1	1.63	0.47
1:G:961:GLU:HG3	1:G:967:ILE:HG12	1.97	0.47
1:D:806:LEU:HB3	1:D:814:CYS:HB3	1.97	0.46
1:D:961:GLU:HG3	1:D:967:ILE:HG12	1.97	0.46
1:E:806:LEU:HB3	1:E:814:CYS:HB3	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:859:THR:OG1	1:A:979:LYS:NZ	2.44	0.46
1:A:961:GLU:HG3	1:A:967:ILE:HG12	1.97	0.46
1:E:85:ALA:HB3	1:E:88:PRO:HD2	1.96	0.46
1:H:961:GLU:HG3	1:H:967:ILE:HG12	1.97	0.46
1:I:284:ASN:HD21	1:I:302:LEU:HA	1.79	0.46
1:E:127:LEU:HD23	1:E:138:TYR:HD2	1.80	0.46
1:H:859:THR:OG1	1:H:979:LYS:NZ	2.44	0.46
1:A:806:LEU:HB3	1:A:814:CYS:HB3	1.97	0.46
1:B:503:GLN:HE21	1:B:692:PHE:HD1	1.63	0.46
1:E:474:ASN:OD1	1:G:474:ASN:ND2	2.45	0.46
1:C:127:LEU:HD23	1:C:138:TYR:HD2	1.81	0.46
1:A:85:ALA:HB3	1:A:88:PRO:HD2	1.96	0.46
1:C:806:LEU:HB3	1:C:814:CYS:HB3	1.97	0.46
1:A:503:GLN:HE21	1:A:692:PHE:HD1	1.64	0.46
1:C:85:ALA:HB3	1:C:88:PRO:HD2	1.96	0.46
1:I:503:GLN:HE21	1:I:692:PHE:HD1	1.63	0.46
1:G:806:LEU:HB3	1:G:814:CYS:HB3	1.97	0.46
1:I:127:LEU:HD23	1:I:138:TYR:HD2	1.80	0.46
1:B:127:LEU:HD23	1:B:138:TYR:HD2	1.80	0.46
1:H:806:LEU:HB3	1:H:814:CYS:HB3	1.97	0.46
1:A:792:TYR:HE1	1:C:454:LYS:HZ1	1.63	0.45
1:C:1150:GLY:O	1:C:1152:HIS:ND1	2.48	0.45
1:E:454:LYS:HZ1	1:G:792:TYR:HE1	1.64	0.45
1:E:503:GLN:HE21	1:E:692:PHE:HD1	1.64	0.45
1:A:282:PRO:HD2	1:A:304:SER:HB2	1.99	0.45
1:C:503:GLN:HE21	1:C:692:PHE:HD1	1.64	0.45
1:A:454:LYS:HZ1	1:C:792:TYR:HE1	1.65	0.45
1:A:1150:GLY:O	1:A:1152:HIS:ND1	2.48	0.45
1:C:859:THR:OG1	1:C:979:LYS:NZ	2.44	0.45
1:G:127:LEU:HD23	1:G:138:TYR:HD2	1.80	0.45
1:A:127:LEU:HD23	1:A:138:TYR:HD2	1.80	0.45
1:B:488:SER:HB2	1:B:671:LEU:HD22	1.99	0.45
1:I:282:PRO:HD2	1:I:304:SER:HB2	1.99	0.45
1:G:282:PRO:HD2	1:G:304:SER:HB2	1.99	0.45
1:I:488:SER:HB2	1:I:671:LEU:HD22	1.99	0.45
1:G:1150:GLY:O	1:G:1152:HIS:ND1	2.48	0.44
1:H:1150:GLY:O	1:H:1152:HIS:ND1	2.47	0.44
1:E:282:PRO:HD2	1:E:304:SER:HB2	1.99	0.44
1:C:282:PRO:HD2	1:C:304:SER:HB2	1.99	0.44
1:E:792:TYR:HE1	1:G:454:LYS:HZ1	1.65	0.44
1:G:488:SER:HB2	1:G:671:LEU:HD22	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:488:SER:HB2	1:E:671:LEU:HD22	1.99	0.44
1:C:488:SER:HB2	1:C:671:LEU:HD22	1.99	0.43
1:C:549:THR:HB	1:C:568:ASP:OD2	2.18	0.43
1:C:920:ILE:HD11	1:C:976:VAL:HG21	2.00	0.43
1:B:282:PRO:HD2	1:B:304:SER:HB2	1.99	0.43
1:A:488:SER:HB2	1:A:671:LEU:HD22	1.99	0.43
1:A:1306:SER:OG	1:A:1307:ASP:N	2.52	0.43
1:D:1306:SER:OG	1:D:1307:ASP:N	2.52	0.43
1:G:920:ILE:HD11	1:G:976:VAL:HG21	2.00	0.43
1:H:920:ILE:HD11	1:H:976:VAL:HG21	2.00	0.43
1:B:131:SER:OG	1:B:132:ASP:N	2.52	0.43
1:A:131:SER:OG	1:A:132:ASP:N	2.52	0.43
1:E:131:SER:OG	1:E:132:ASP:N	2.52	0.43
1:E:316:GLU:OE2	1:G:890:TYR:HB3	2.19	0.43
1:I:429:LEU:HB2	1:I:448:VAL:HB	2.01	0.43
1:D:920:ILE:HD11	1:D:976:VAL:HG21	2.00	0.43
1:E:503:GLN:HE22	1:E:693:ALA:H	1.67	0.43
1:G:549:THR:HB	1:G:568:ASP:OD2	2.18	0.43
1:A:503:GLN:HE22	1:A:693:ALA:H	1.67	0.43
1:A:890:TYR:HB3	1:C:316:GLU:OE2	2.19	0.43
1:B:549:THR:HB	1:B:568:ASP:OD2	2.18	0.43
1:E:920:ILE:HD11	1:E:976:VAL:HG21	2.00	0.43
1:A:494:VAL:HB	1:A:502:LEU:HB2	2.01	0.42
1:B:316:GLU:OE2	1:D:890:TYR:HB3	2.19	0.42
1:C:503:GLN:HE22	1:C:693:ALA:H	1.67	0.42
1:E:890:TYR:HB3	1:G:316:GLU:OE2	2.19	0.42
1:A:429:LEU:HB2	1:A:448:VAL:HB	2.01	0.42
1:A:549:THR:HB	1:A:568:ASP:OD2	2.18	0.42
1:C:494:VAL:HB	1:C:502:LEU:HB2	2.01	0.42
1:G:503:GLN:HE22	1:G:693:ALA:H	1.68	0.42
1:G:953:GLU:OE2	1:G:972:LYS:NZ	2.43	0.42
1:C:131:SER:OG	1:C:132:ASP:N	2.52	0.42
1:G:131:SER:OG	1:G:132:ASP:N	2.52	0.42
1:H:1306:SER:OG	1:H:1307:ASP:N	2.52	0.42
1:B:35:ASN:N	1:B:172:TYR:OH	2.46	0.42
1:E:549:THR:HB	1:E:568:ASP:OD2	2.18	0.42
1:H:1100:GLN:HE21	1:H:1159:TYR:HE2	1.68	0.42
1:I:534:LEU:HG	1:I:536:GLY:H	1.85	0.42
1:G:429:LEU:HB2	1:G:448:VAL:HB	2.01	0.42
1:G:534:LEU:HG	1:G:536:GLY:H	1.85	0.42
1:J:1306:SER:OG	1:J:1307:ASP:N	2.52	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:316:GLU:OE2	1:C:890:TYR:HB3	2.19	0.42
1:A:534:LEU:HG	1:A:536:GLY:H	1.85	0.42
1:C:429:LEU:HB2	1:C:448:VAL:HB	2.01	0.42
1:E:429:LEU:HB2	1:E:448:VAL:HB	2.01	0.42
1:E:534:LEU:HG	1:E:536:GLY:H	1.85	0.42
1:E:1306:SER:OG	1:E:1307:ASP:N	2.52	0.42
1:A:920:ILE:HD11	1:A:976:VAL:HG21	2.00	0.42
1:E:494:VAL:HB	1:E:502:LEU:HB2	2.02	0.42
1:A:66:ASP:HB3	1:A:72:LYS:HG3	2.02	0.42
1:B:494:VAL:HB	1:B:502:LEU:HB2	2.01	0.42
1:G:66:ASP:HB3	1:G:72:LYS:HG3	2.02	0.42
1:G:494:VAL:HB	1:G:502:LEU:HB2	2.01	0.42
1:I:494:VAL:HB	1:I:502:LEU:HB2	2.01	0.42
1:I:503:GLN:HE22	1:I:693:ALA:H	1.67	0.42
1:B:503:GLN:HE22	1:B:693:ALA:H	1.67	0.42
1:E:66:ASP:HB3	1:E:72:LYS:HG3	2.02	0.42
1:H:890:TYR:HB3	1:I:316:GLU:OE2	2.19	0.42
1:A:171:ASP:OD2	1:A:179:SER:OG	2.38	0.42
1:B:429:LEU:HB2	1:B:448:VAL:HB	2.01	0.42
1:C:540:LYS:HA	1:C:546:VAL:HA	2.02	0.42
1:I:549:THR:HB	1:I:568:ASP:OD2	2.18	0.42
1:I:131:SER:OG	1:I:132:ASP:N	2.52	0.41
1:B:534:LEU:HG	1:B:536:GLY:H	1.85	0.41
1:C:534:LEU:HG	1:C:536:GLY:H	1.85	0.41
1:G:540:LYS:HA	1:G:546:VAL:HA	2.02	0.41
1:I:66:ASP:HB3	1:I:72:LYS:HG3	2.02	0.41
1:I:540:LYS:HA	1:I:546:VAL:HA	2.02	0.41
1:C:1100:GLN:HE21	1:C:1159:TYR:HE2	1.68	0.41
1:F:1306:SER:OG	1:F:1307:ASP:N	2.52	0.41
1:H:792:TYR:HE1	1:I:454:LYS:HZ1	1.69	0.41
1:A:540:LYS:HA	1:A:546:VAL:HA	2.02	0.41
1:B:66:ASP:HB3	1:B:72:LYS:HG3	2.02	0.41
1:C:66:ASP:HB3	1:C:72:LYS:HG3	2.02	0.41
1:E:1150:GLY:O	1:E:1152:HIS:ND1	2.47	0.41
1:I:35:ASN:HB3	1:I:36:VAL:H	1.72	0.41
1:E:1100:GLN:HE21	1:E:1159:TYR:HE2	1.68	0.41
1:G:936:ARG:HH21	1:G:951:THR:HB	1.86	0.41
1:G:1187:CYS:SG	1:G:1188:GLY:N	2.94	0.41
1:A:1100:GLN:HE21	1:A:1159:TYR:HE2	1.68	0.41
1:B:171:ASP:OD2	1:B:179:SER:OG	2.38	0.41
1:D:1100:GLN:HE21	1:D:1159:TYR:HE2	1.68	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:953:GLU:OE2	1:A:972:LYS:NZ	2.43	0.41
1:C:969:ILE:HB	1:C:977:PHE:HB2	2.03	0.41
1:D:969:ILE:HB	1:D:977:PHE:HB2	2.03	0.41
1:E:516:LEU:HD11	1:E:524:VAL:HG11	2.03	0.41
1:H:936:ARG:HH21	1:H:951:THR:HB	1.86	0.41
1:A:969:ILE:HB	1:A:977:PHE:HB2	2.03	0.40
1:D:1187:CYS:SG	1:D:1188:GLY:N	2.94	0.40
1:E:936:ARG:HH21	1:E:951:THR:HB	1.86	0.40
1:E:1187:CYS:SG	1:E:1188:GLY:N	2.94	0.40
1:G:171:ASP:OD2	1:G:179:SER:OG	2.38	0.40
1:I:67:CYS:HB2	1:I:166:CYS:HB3	1.99	0.40
1:I:171:ASP:OD2	1:I:179:SER:OG	2.38	0.40
1:C:145:LEU:HD11	1:C:153:LEU:HD11	2.03	0.40
1:C:1187:CYS:SG	1:C:1188:GLY:N	2.94	0.40
1:G:1100:GLN:HE21	1:G:1159:TYR:HE2	1.68	0.40
1:B:198:LYS:NZ	1:B:206:CYS:O	2.52	0.40
1:C:228:LEU:HD11	1:C:290:LEU:HD21	2.04	0.40
1:E:540:LYS:HA	1:E:546:VAL:HA	2.02	0.40
1:G:969:ILE:HB	1:G:977:PHE:HB2	2.03	0.40
1:H:1187:CYS:SG	1:H:1188:GLY:N	2.94	0.40
1:C:936:ARG:HH21	1:C:951:THR:HB	1.86	0.40
1:E:52:VAL:O	1:E:248:ARG:NH2	2.55	0.40
1:E:969:ILE:HB	1:E:977:PHE:HB2	2.03	0.40
1:B:188:PHE:HA	1:B:192:GLU:OE2	2.22	0.40
1:C:352:HIS:HD2	1:C:361:THR:HA	1.87	0.40
1:G:352:HIS:HD2	1:G:361:THR:HA	1.87	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 PDB entries followed by that with respect to all EM entries.

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	1195/1383 (86%)	1061 (89%)	134 (11%)	0	100	100
1	B	705/1383 (51%)	611 (87%)	94 (13%)	0	100	100
1	C	1107/1383 (80%)	971 (88%)	136 (12%)	0	100	100
1	D	490/1383 (35%)	450 (92%)	40 (8%)	0	100	100
1	E	1195/1383 (86%)	1062 (89%)	133 (11%)	0	100	100
1	F	88/1383 (6%)	87 (99%)	1 (1%)	0	100	100
1	G	1107/1383 (80%)	974 (88%)	133 (12%)	0	100	100
1	H	490/1383 (35%)	450 (92%)	40 (8%)	0	100	100
1	I	705/1383 (51%)	612 (87%)	93 (13%)	0	100	100
1	J	88/1383 (6%)	87 (99%)	1 (1%)	0	100	100
All	All	7170/13830 (52%)	6365 (89%)	805 (11%)	0	100	100

There are no Ramachandran outliers to report.

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 PDB entries followed by that with respect to all EM entries.

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	996/1204 (83%)	994 (100%)	2 (0%)	93	98
1	B	562/1204 (47%)	561 (100%)	1 (0%)	93	98
1	C	918/1204 (76%)	916 (100%)	2 (0%)	93	98
1	D	434/1204 (36%)	433 (100%)	1 (0%)	93	98
1	E	996/1204 (83%)	994 (100%)	2 (0%)	93	98
1	F	78/1204 (6%)	78 (100%)	0	100	100
1	G	918/1204 (76%)	916 (100%)	2 (0%)	93	98
1	H	434/1204 (36%)	433 (100%)	1 (0%)	93	98
1	I	562/1204 (47%)	561 (100%)	1 (0%)	93	98
1	J	78/1204 (6%)	78 (100%)	0	100	100
All	All	5976/12040 (50%)	5964 (100%)	12 (0%)	93	98

All (12) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	419	LYS
1	A	998	ARG
1	B	419	LYS
1	C	419	LYS
1	C	998	ARG
1	D	998	ARG
1	E	419	LYS
1	E	998	ARG
1	G	419	LYS
1	G	998	ARG
1	H	998	ARG
1	I	419	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (53) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	221	HIS
1	A	284	ASN
1	A	352	HIS
1	A	474	ASN
1	A	503	GLN
1	A	652	HIS
1	A	665	GLN
1	A	1008	HIS
1	A	1195	HIS
1	A	1370	GLN
1	B	221	HIS
1	B	284	ASN
1	B	352	HIS
1	B	503	GLN
1	B	652	HIS
1	B	665	GLN
1	C	221	HIS
1	C	284	ASN
1	C	352	HIS
1	C	474	ASN
1	C	503	GLN
1	C	652	HIS
1	C	665	GLN
1	C	1008	HIS
1	D	1008	HIS

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Mol	Chain	Res	Type
1	D	1370	GLN
1	E	221	HIS
1	E	284	ASN
1	E	352	HIS
1	E	474	ASN
1	E	503	GLN
1	E	652	HIS
1	E	665	GLN
1	E	1008	HIS
1	E	1370	GLN
1	F	1370	GLN
1	G	221	HIS
1	G	284	ASN
1	G	352	HIS
1	G	474	ASN
1	G	503	GLN
1	G	652	HIS
1	G	665	GLN
1	G	1008	HIS
1	H	1008	HIS
1	H	1370	GLN
1	I	221	HIS
1	I	284	ASN
1	I	352	HIS
1	I	503	GLN
1	I	652	HIS
1	I	665	GLN
1	J	1370	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](#)

12 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	K	1	2,1	14,14,15	0.31	0	17,19,21	0.46	0
2	NAG	K	2	2	14,14,15	0.28	0	17,19,21	0.59	1 (5%)
2	NAG	L	1	2,1	14,14,15	0.31	0	17,19,21	0.46	0
2	NAG	L	2	2	14,14,15	0.27	0	17,19,21	0.58	1 (5%)
2	NAG	M	1	2,1	14,14,15	0.32	0	17,19,21	0.48	0
2	NAG	M	2	2	14,14,15	0.29	0	17,19,21	0.59	1 (5%)
2	NAG	N	1	2,1	14,14,15	0.31	0	17,19,21	0.47	0
2	NAG	N	2	2	14,14,15	0.28	0	17,19,21	0.58	1 (5%)
2	NAG	O	1	2,1	14,14,15	0.30	0	17,19,21	0.46	0
2	NAG	O	2	2	14,14,15	0.27	0	17,19,21	0.58	1 (5%)
2	NAG	P	1	2,1	14,14,15	0.33	0	17,19,21	0.47	0
2	NAG	P	2	2	14,14,15	0.28	0	17,19,21	0.59	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
2	NAG	K	1	2,1	-	1/6/23/26	0/1/1/1
2	NAG	K	2	2	-	2/6/23/26	0/1/1/1
2	NAG	L	1	2,1	-	1/6/23/26	0/1/1/1
2	NAG	L	2	2	-	2/6/23/26	0/1/1/1
2	NAG	M	1	2,1	-	1/6/23/26	0/1/1/1
2	NAG	M	2	2	-	2/6/23/26	0/1/1/1
2	NAG	N	1	2,1	-	1/6/23/26	0/1/1/1
2	NAG	N	2	2	-	2/6/23/26	0/1/1/1
2	NAG	O	1	2,1	-	1/6/23/26	0/1/1/1
2	NAG	O	2	2	-	2/6/23/26	0/1/1/1
2	NAG	P	1	2,1	-	1/6/23/26	0/1/1/1
2	NAG	P	2	2	-	2/6/23/26	0/1/1/1

There are no bond length outliers.

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	P	2	NAG	C1-O5-C5	2.04	114.95	112.19
2	K	2	NAG	C1-O5-C5	2.03	114.95	112.19
2	L	2	NAG	C1-O5-C5	2.03	114.94	112.19
2	M	2	NAG	C1-O5-C5	2.02	114.92	112.19
2	O	2	NAG	C1-O5-C5	2.01	114.92	112.19
2	N	2	NAG	C1-O5-C5	2.00	114.91	112.19

There are no chirality outliers.

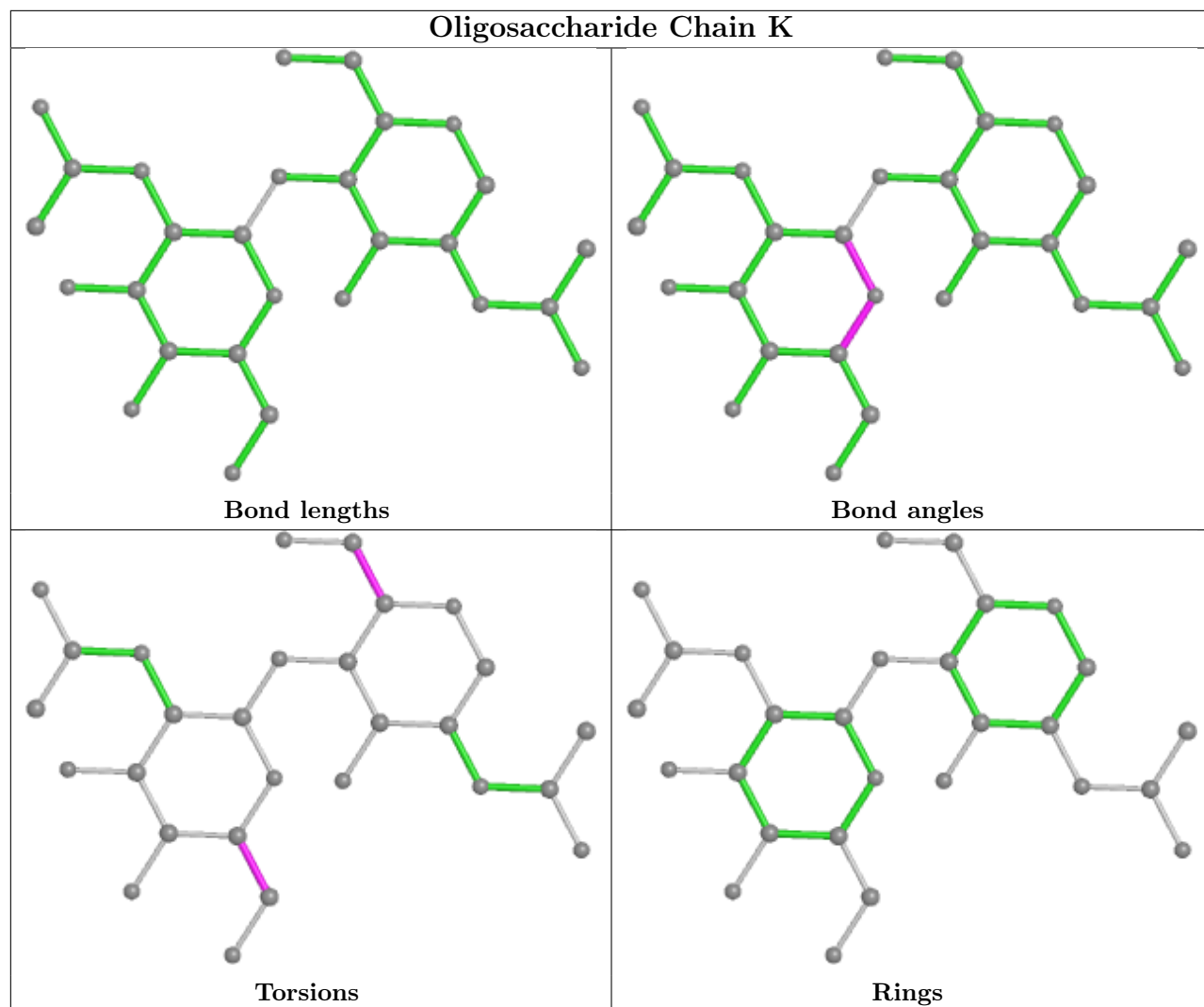
All (18) torsion outliers are listed below:

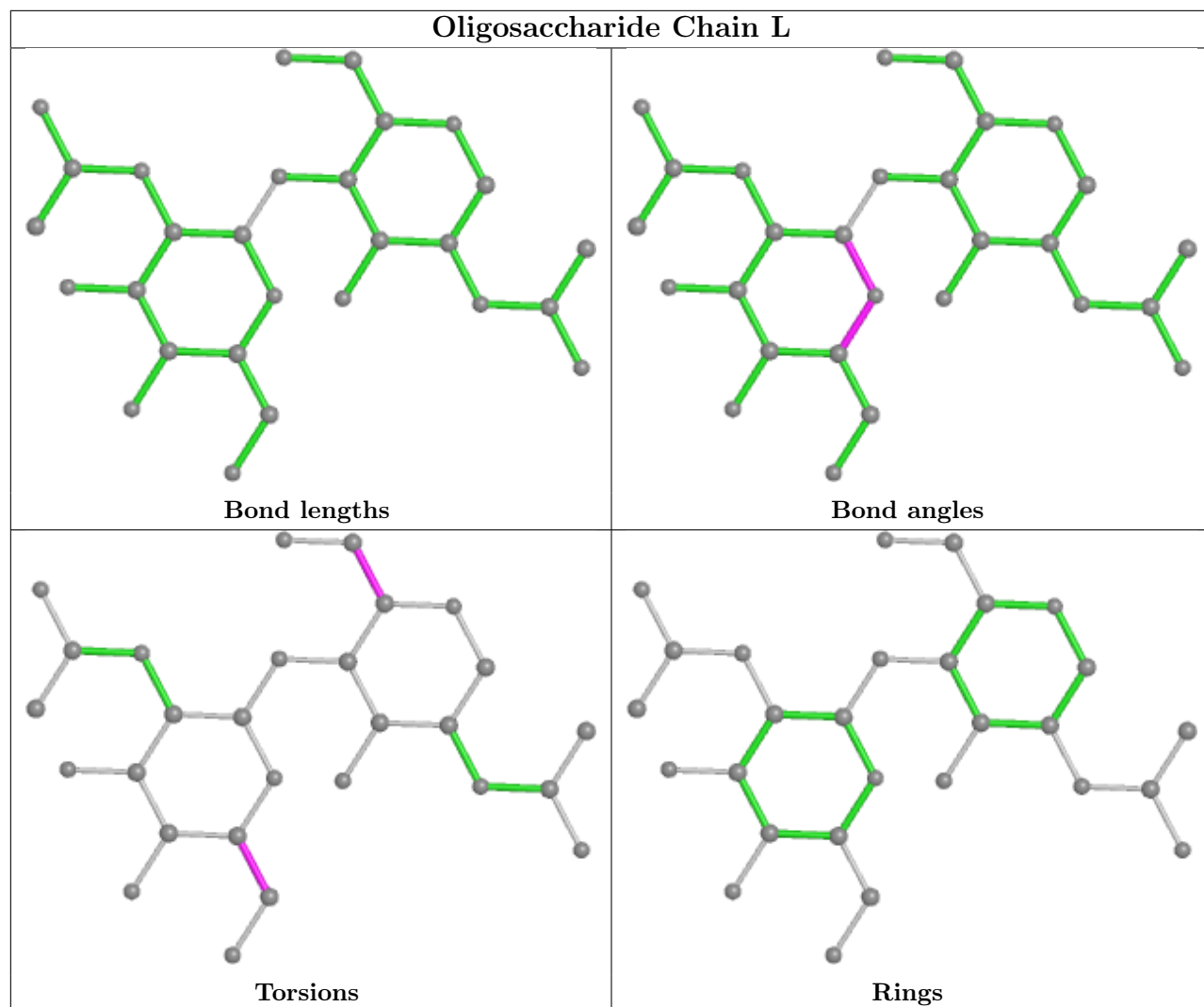
Mol	Chain	Res	Type	Atoms
2	K	2	NAG	O5-C5-C6-O6
2	L	2	NAG	O5-C5-C6-O6
2	M	2	NAG	O5-C5-C6-O6
2	N	2	NAG	O5-C5-C6-O6
2	O	2	NAG	O5-C5-C6-O6
2	P	2	NAG	O5-C5-C6-O6
2	K	2	NAG	C4-C5-C6-O6
2	L	2	NAG	C4-C5-C6-O6
2	M	2	NAG	C4-C5-C6-O6
2	N	2	NAG	C4-C5-C6-O6
2	O	2	NAG	C4-C5-C6-O6
2	P	2	NAG	C4-C5-C6-O6
2	K	1	NAG	C4-C5-C6-O6
2	L	1	NAG	C4-C5-C6-O6
2	O	1	NAG	C4-C5-C6-O6
2	M	1	NAG	C4-C5-C6-O6
2	N	1	NAG	C4-C5-C6-O6
2	P	1	NAG	C4-C5-C6-O6

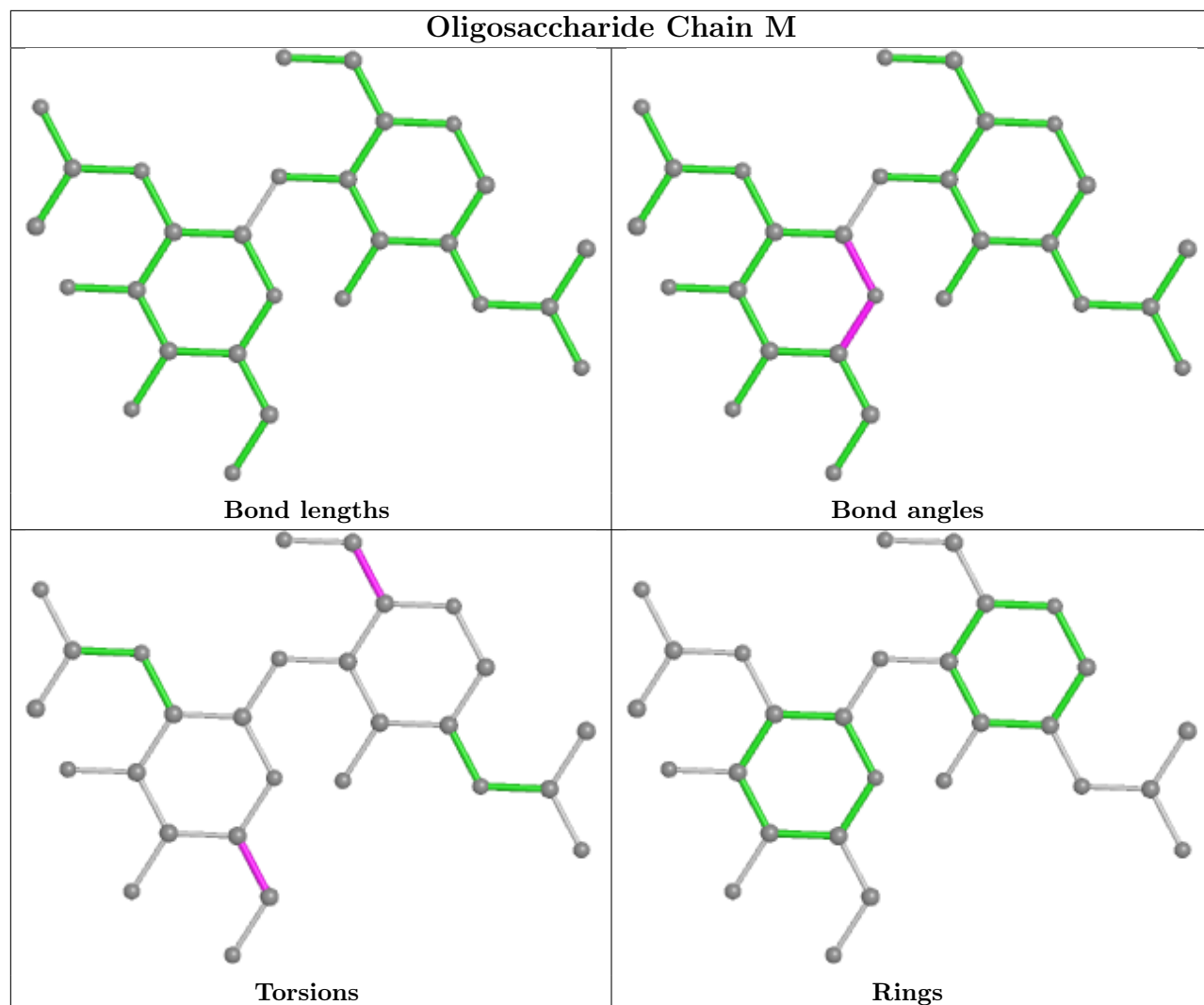
There are no ring outliers.

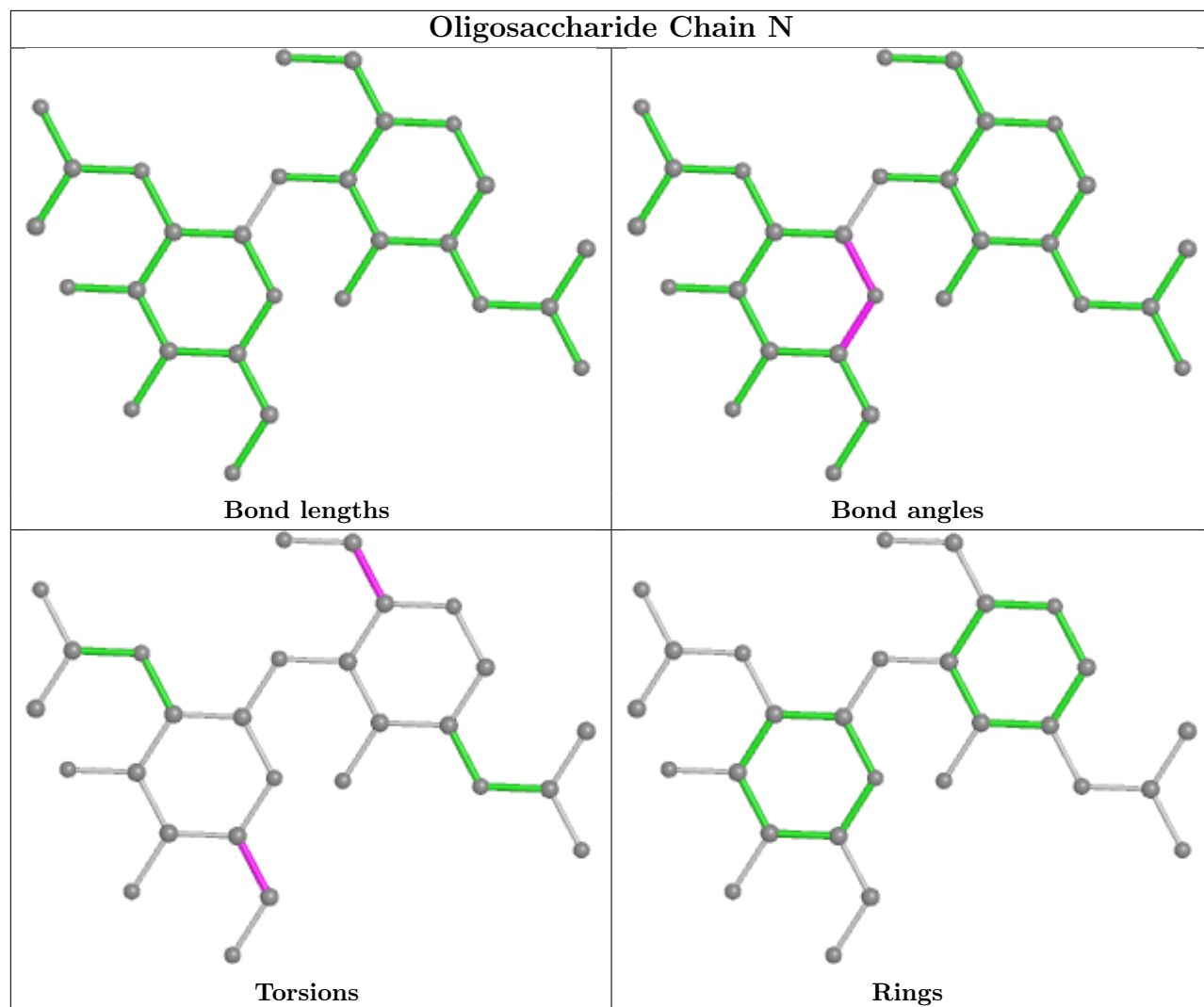
No monomer is involved in short contacts.

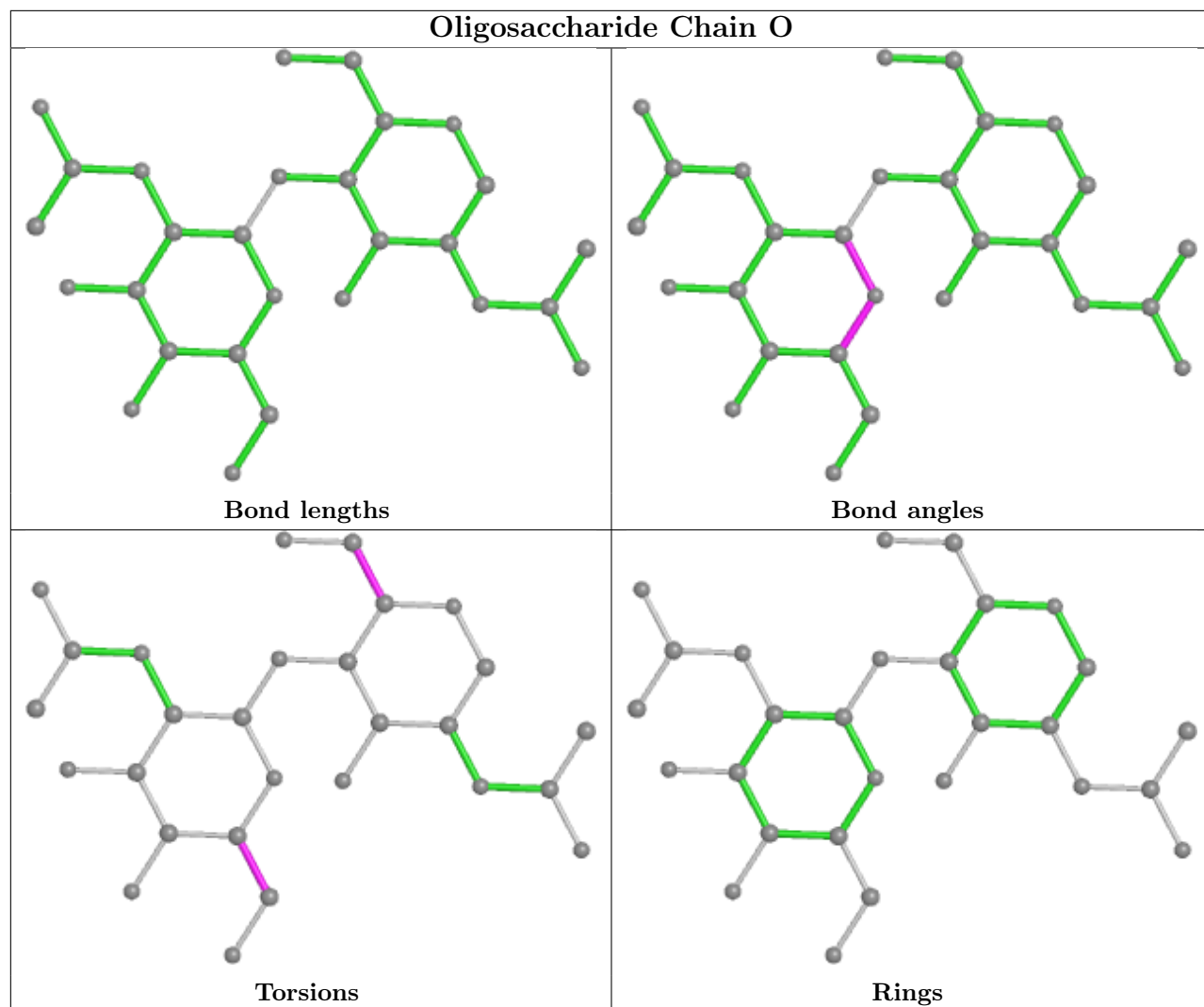
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

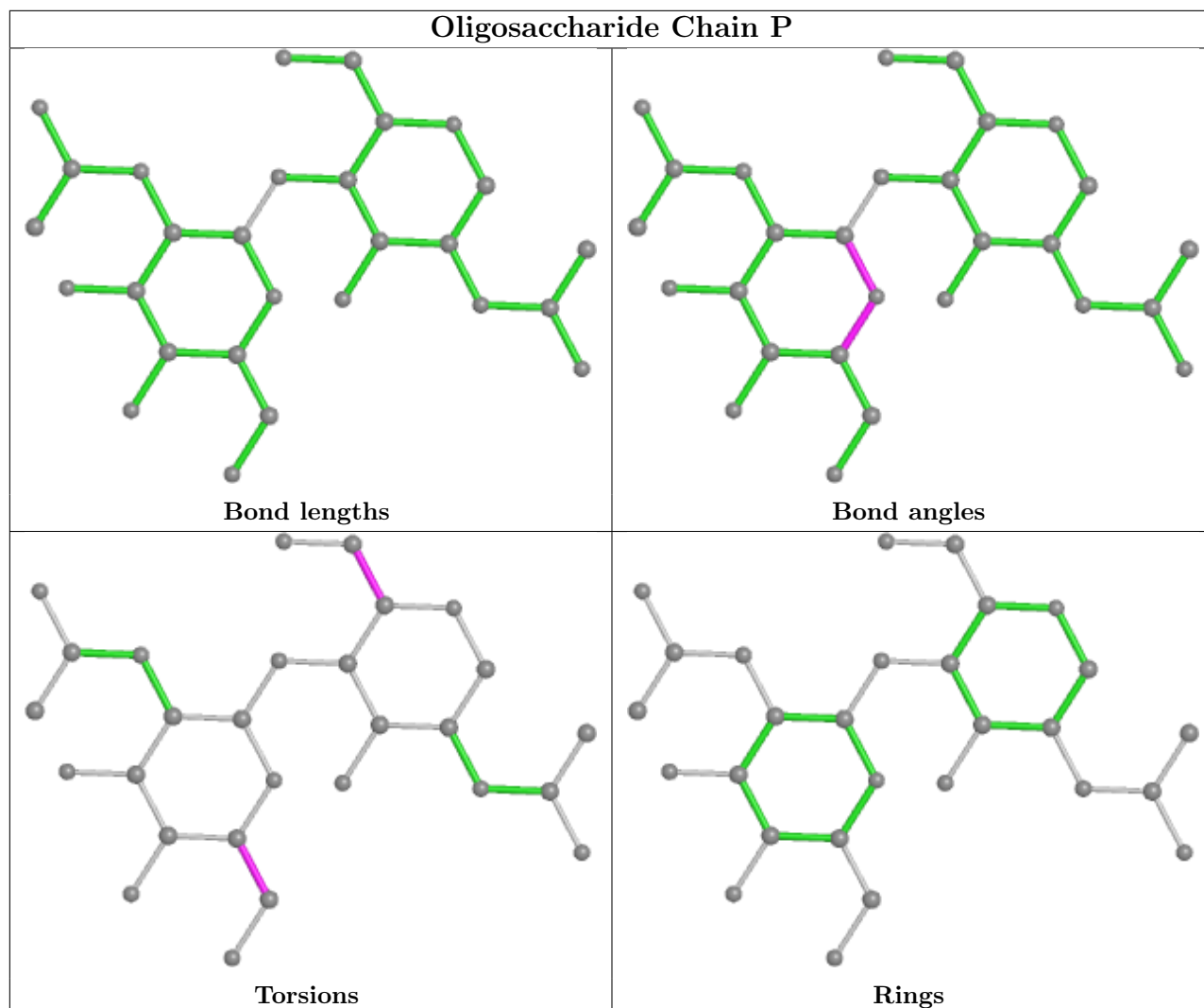












5.6 Ligand geometry [i](#)

Of 42 ligands modelled in this entry, 30 are monoatomic - leaving 12 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	$\# Z > 2$
4	NAG	I	2004	1	14,14,15	0.33	0	17,19,21	0.49	0
4	NAG	G	2004	1	14,14,15	1.33	2 (14%)	17,19,21	1.27	1 (5%)
4	NAG	B	2004	1	14,14,15	0.33	0	17,19,21	0.49	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	NAG	E	2006	1	14,14,15	1.35	2 (14%)	17,19,21	1.26	1 (5%)
4	NAG	B	2003	1	14,14,15	1.33	2 (14%)	17,19,21	1.26	1 (5%)
4	NAG	A	1507	1	14,14,15	0.34	0	17,19,21	0.49	0
4	NAG	C	2004	1	14,14,15	1.34	2 (14%)	17,19,21	1.27	1 (5%)
4	NAG	E	2007	1	14,14,15	0.34	0	17,19,21	0.49	0
4	NAG	C	2005	1	14,14,15	0.35	0	17,19,21	0.49	0
4	NAG	A	1506	1	14,14,15	1.34	2 (14%)	17,19,21	1.27	1 (5%)
4	NAG	G	2005	1	14,14,15	0.33	0	17,19,21	0.50	0
4	NAG	I	2003	1	14,14,15	1.34	2 (14%)	17,19,21	1.26	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
4	NAG	I	2004	1	-	4/6/23/26	0/1/1/1
4	NAG	G	2004	1	-	2/6/23/26	0/1/1/1
4	NAG	B	2004	1	-	4/6/23/26	0/1/1/1
4	NAG	E	2006	1	-	2/6/23/26	0/1/1/1
4	NAG	B	2003	1	-	2/6/23/26	0/1/1/1
4	NAG	A	1507	1	-	4/6/23/26	0/1/1/1
4	NAG	C	2004	1	-	2/6/23/26	0/1/1/1
4	NAG	E	2007	1	-	4/6/23/26	0/1/1/1
4	NAG	C	2005	1	-	4/6/23/26	0/1/1/1
4	NAG	A	1506	1	-	2/6/23/26	0/1/1/1
4	NAG	G	2005	1	-	4/6/23/26	0/1/1/1
4	NAG	I	2003	1	-	2/6/23/26	0/1/1/1

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	I	2003	NAG	O5-C1	4.44	1.50	1.43
4	A	1506	NAG	O5-C1	4.43	1.50	1.43
4	E	2006	NAG	O5-C1	4.43	1.50	1.43
4	B	2003	NAG	O5-C1	4.42	1.50	1.43
4	C	2004	NAG	O5-C1	4.40	1.50	1.43
4	G	2004	NAG	O5-C1	4.40	1.50	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	E	2006	NAG	C1-C2	2.30	1.55	1.52
4	C	2004	NAG	C1-C2	2.27	1.55	1.52
4	A	1506	NAG	C1-C2	2.24	1.55	1.52
4	I	2003	NAG	C1-C2	2.20	1.55	1.52
4	B	2003	NAG	C1-C2	2.18	1.55	1.52
4	G	2004	NAG	C1-C2	2.17	1.55	1.52

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	C	2004	NAG	C1-O5-C5	5.04	119.02	112.19
4	A	1506	NAG	C1-O5-C5	5.03	119.00	112.19
4	G	2004	NAG	C1-O5-C5	5.03	119.00	112.19
4	E	2006	NAG	C1-O5-C5	5.00	118.97	112.19
4	B	2003	NAG	C1-O5-C5	5.00	118.97	112.19
4	I	2003	NAG	C1-O5-C5	4.98	118.94	112.19

There are no chirality outliers.

All (36) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	1507	NAG	O5-C5-C6-O6
4	B	2004	NAG	O5-C5-C6-O6
4	C	2005	NAG	O5-C5-C6-O6
4	E	2007	NAG	O5-C5-C6-O6
4	G	2005	NAG	O5-C5-C6-O6
4	I	2004	NAG	O5-C5-C6-O6
4	B	2004	NAG	C4-C5-C6-O6
4	G	2005	NAG	C4-C5-C6-O6
4	I	2004	NAG	C4-C5-C6-O6
4	A	1506	NAG	O5-C5-C6-O6
4	C	2004	NAG	O5-C5-C6-O6
4	E	2006	NAG	O5-C5-C6-O6
4	I	2003	NAG	O5-C5-C6-O6
4	B	2003	NAG	O5-C5-C6-O6
4	G	2004	NAG	O5-C5-C6-O6
4	A	1507	NAG	C4-C5-C6-O6
4	C	2005	NAG	C4-C5-C6-O6
4	E	2007	NAG	C4-C5-C6-O6
4	A	1507	NAG	C8-C7-N2-C2
4	A	1507	NAG	O7-C7-N2-C2
4	B	2004	NAG	C8-C7-N2-C2

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Mol	Chain	Res	Type	Atoms
4	B	2004	NAG	O7-C7-N2-C2
4	C	2005	NAG	C8-C7-N2-C2
4	C	2005	NAG	O7-C7-N2-C2
4	E	2007	NAG	C8-C7-N2-C2
4	E	2007	NAG	O7-C7-N2-C2
4	G	2005	NAG	C8-C7-N2-C2
4	G	2005	NAG	O7-C7-N2-C2
4	I	2004	NAG	C8-C7-N2-C2
4	I	2004	NAG	O7-C7-N2-C2
4	A	1506	NAG	C4-C5-C6-O6
4	C	2004	NAG	C4-C5-C6-O6
4	E	2006	NAG	C4-C5-C6-O6
4	I	2003	NAG	C4-C5-C6-O6
4	B	2003	NAG	C4-C5-C6-O6
4	G	2004	NAG	C4-C5-C6-O6

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

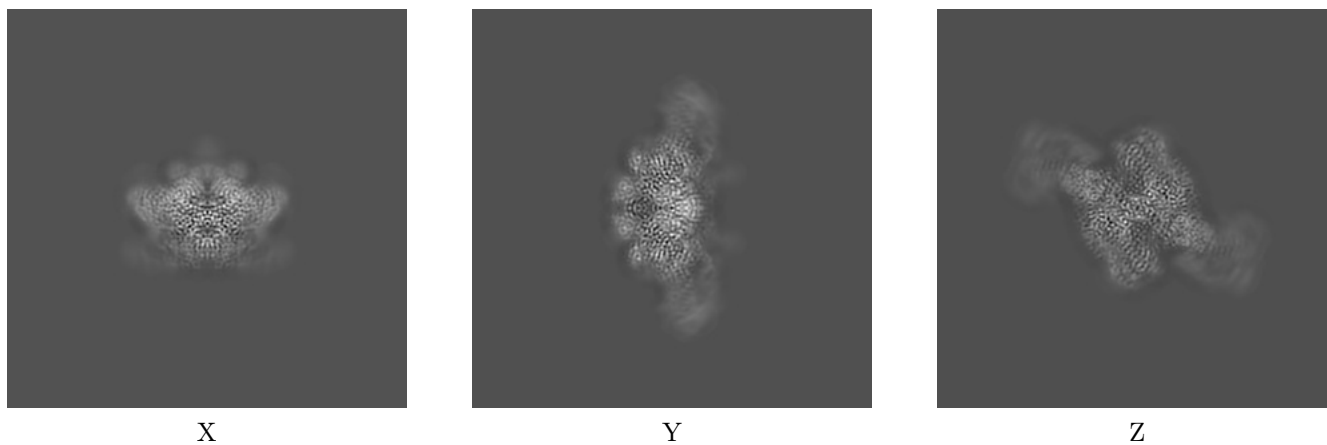
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-10517. These allow visual inspection of the internal detail of the map and identification of artifacts.

No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

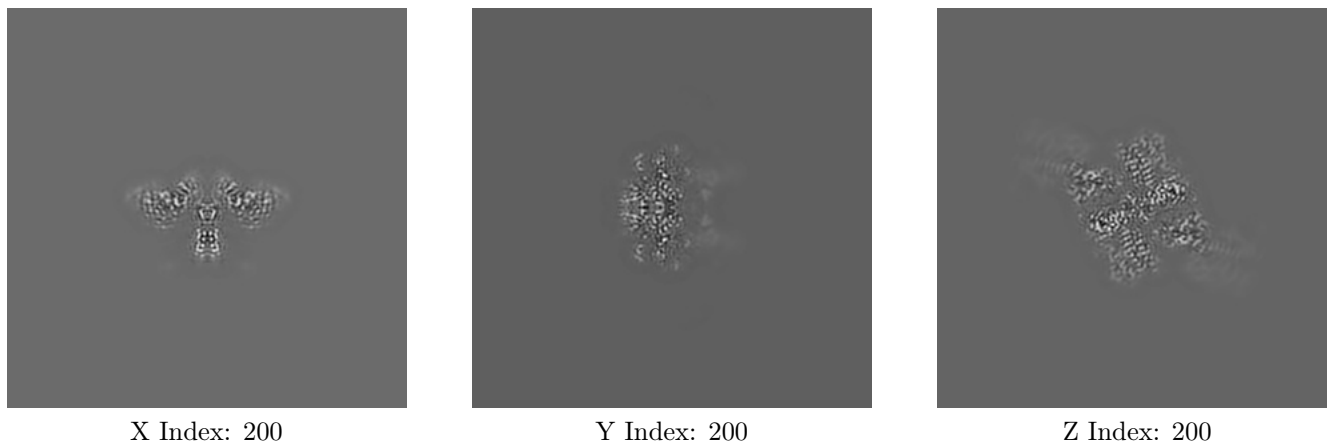
6.1.1 Primary map



The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

6.2.1 Primary map



The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

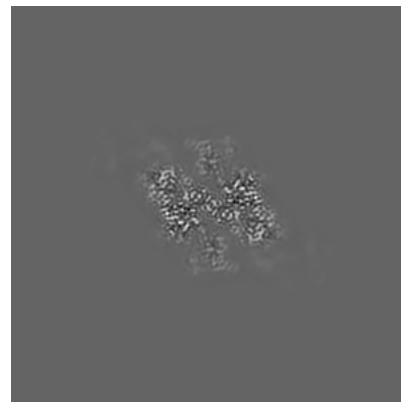
6.3.1 Primary map



X Index: 200



Y Index: 212



Z Index: 189

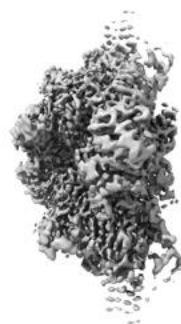
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal surface views [i](#)

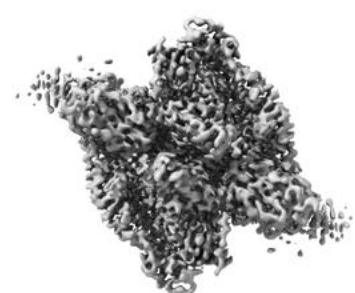
6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.17. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

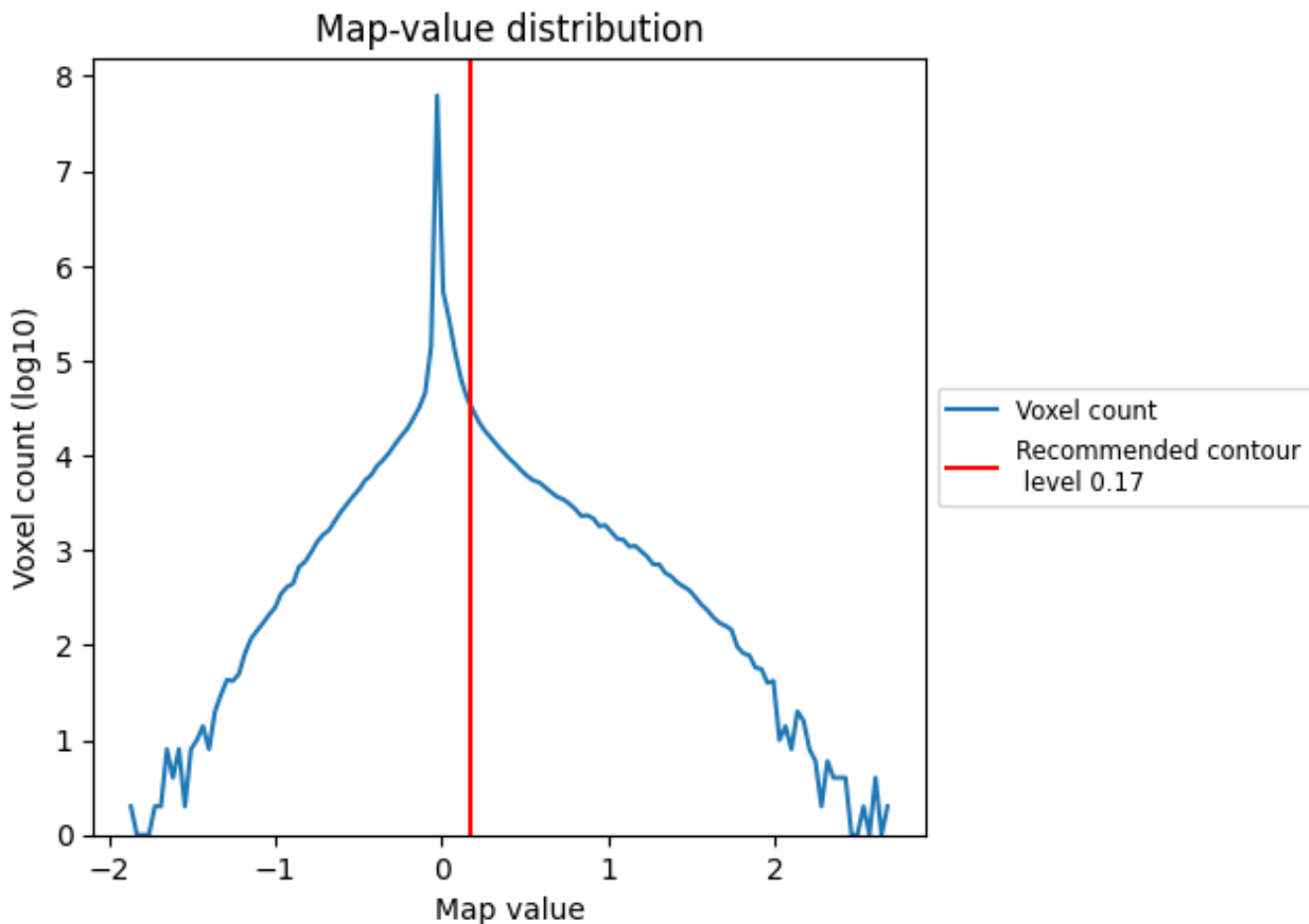
6.5 Mask visualisation

This section was not generated. No masks/segmentation were deposited.

7 Map analysis [i](#)

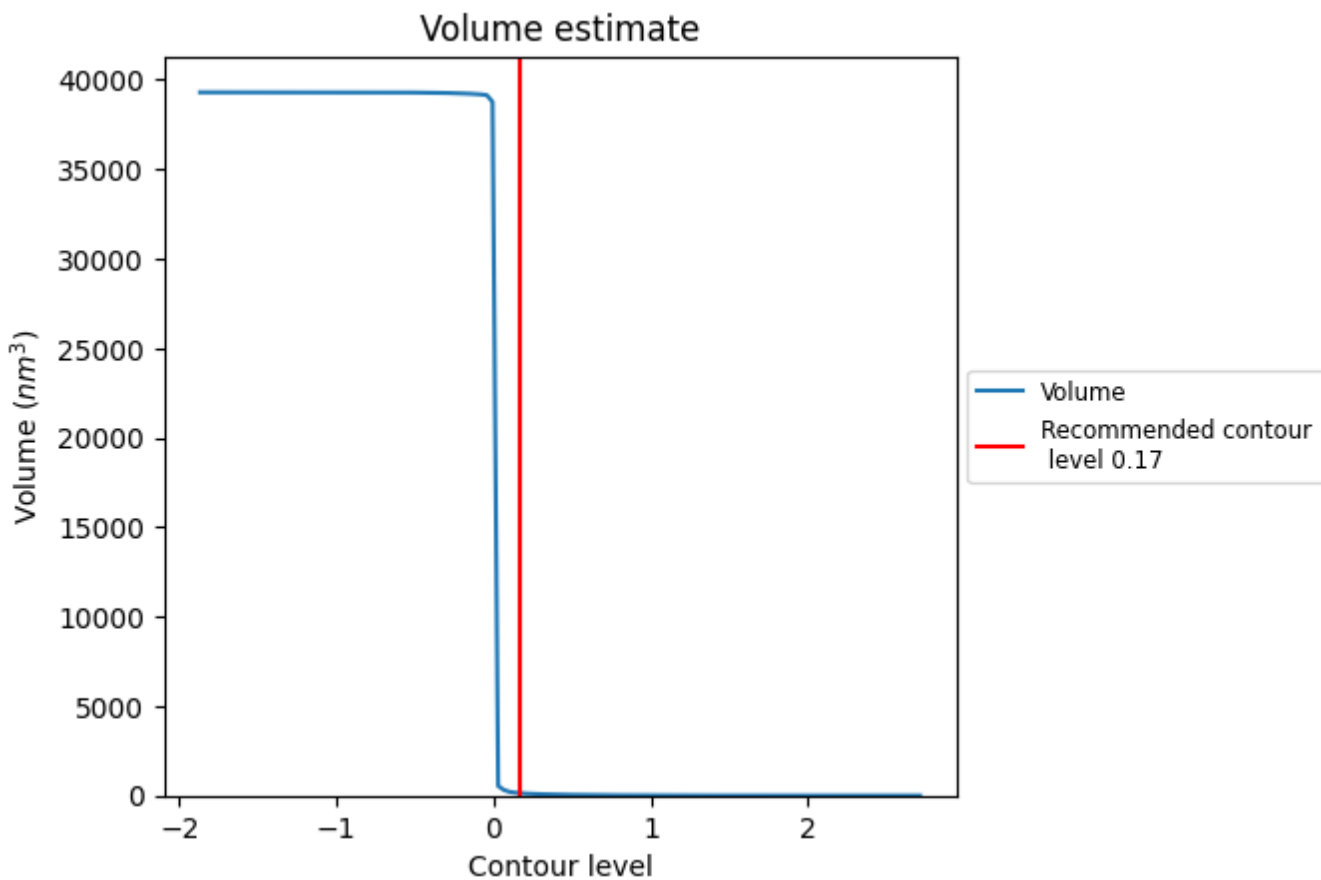
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

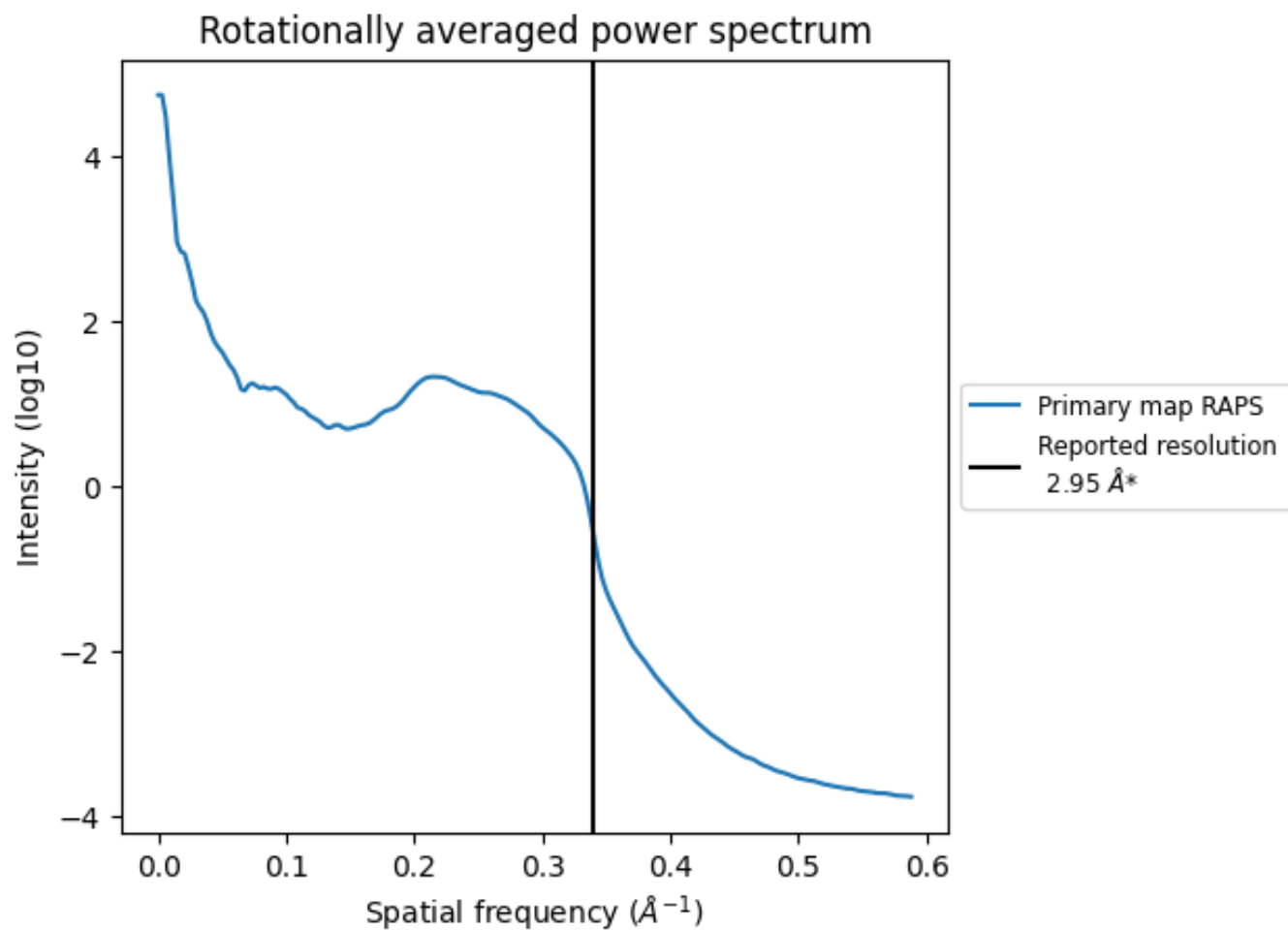
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 133 nm³; this corresponds to an approximate mass of 120 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum [i](#)

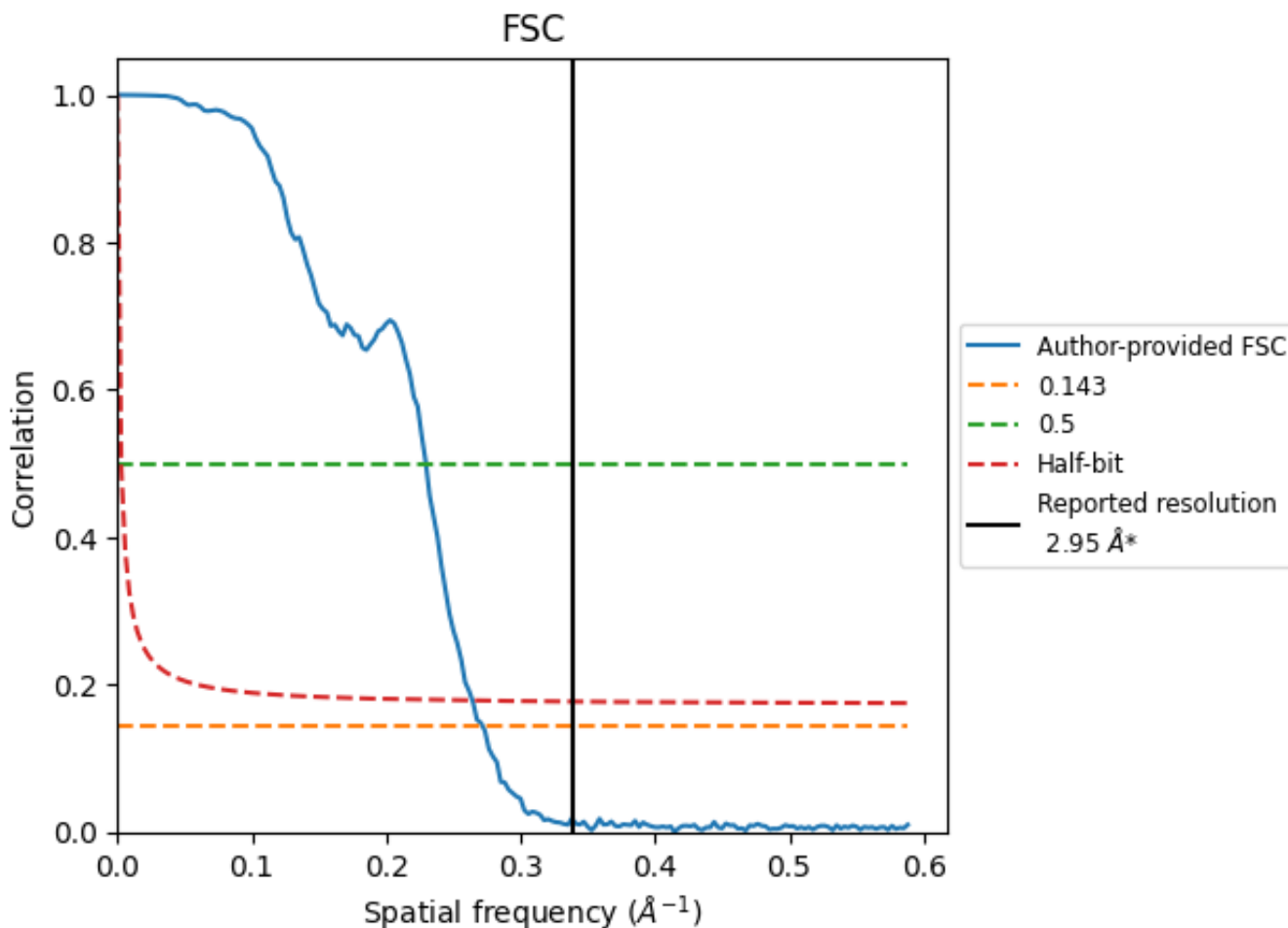


*Reported resolution corresponds to spatial frequency of 0.339\AA^{-1}

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.339 Å⁻¹

8.2 Resolution estimates [i](#)

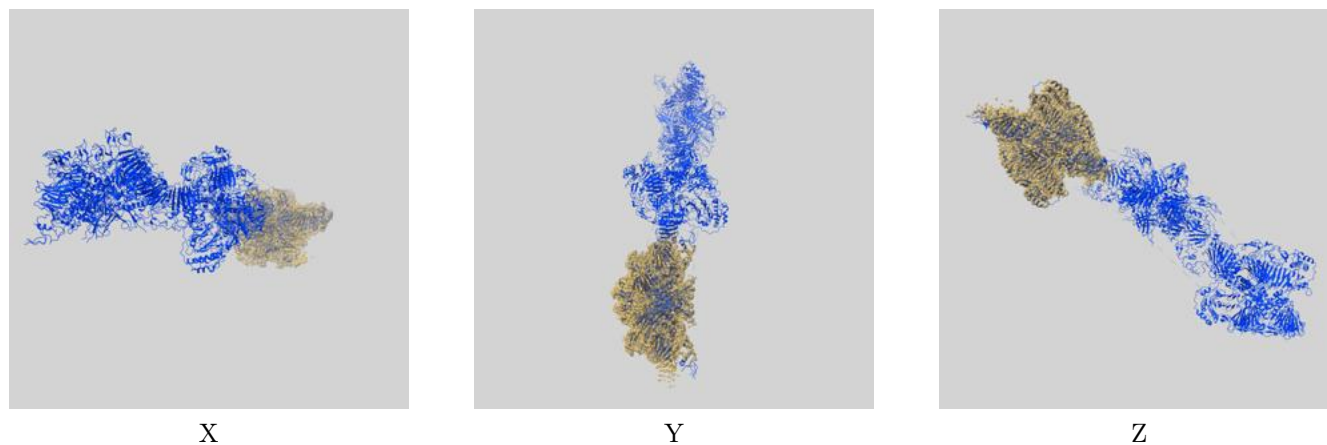
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.95	-	-
Author-provided FSC curve	3.68	4.36	3.79
Unmasked-calculated*	-	-	-

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from author-provided FSC intersecting FSC 0.143 CUT-OFF 3.68 differs from the reported value 2.95 by more than 10 %

9 Map-model fit [i](#)

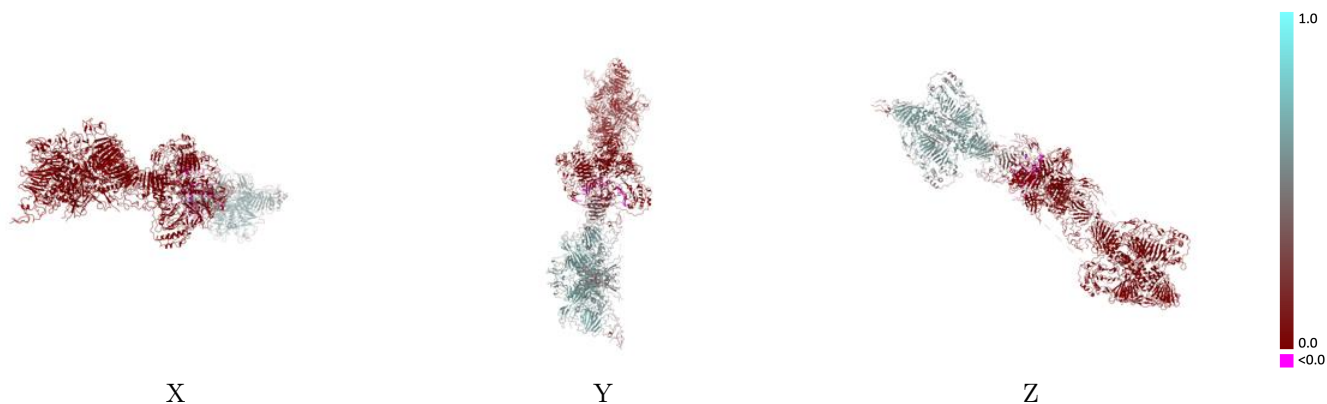
This section contains information regarding the fit between EMDB map EMD-10517 and PDB model 7A5O. Per-residue inclusion information can be found in section 3 on page 10.

9.1 Map-model overlay [i](#)



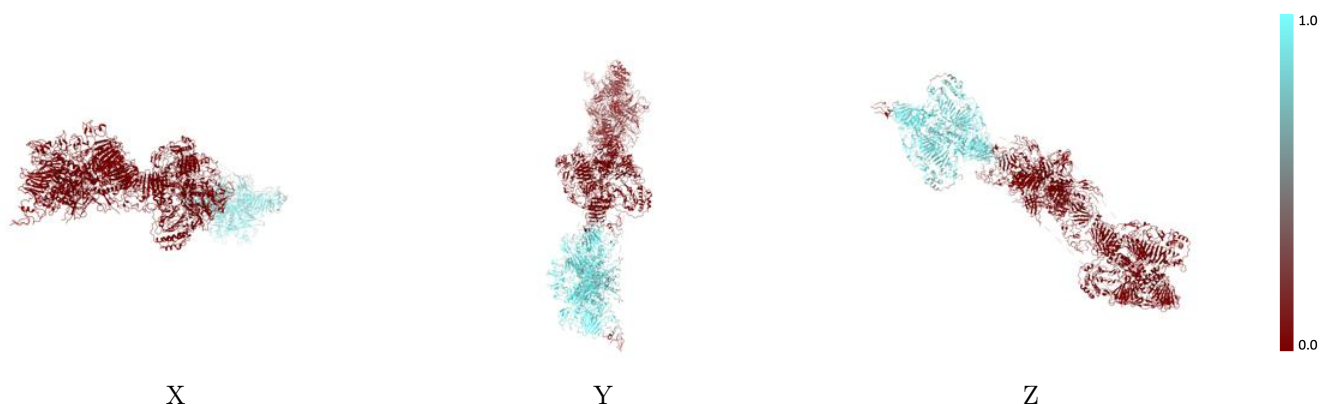
The images above show the 3D surface view of the map at the recommended contour level 0.17 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)



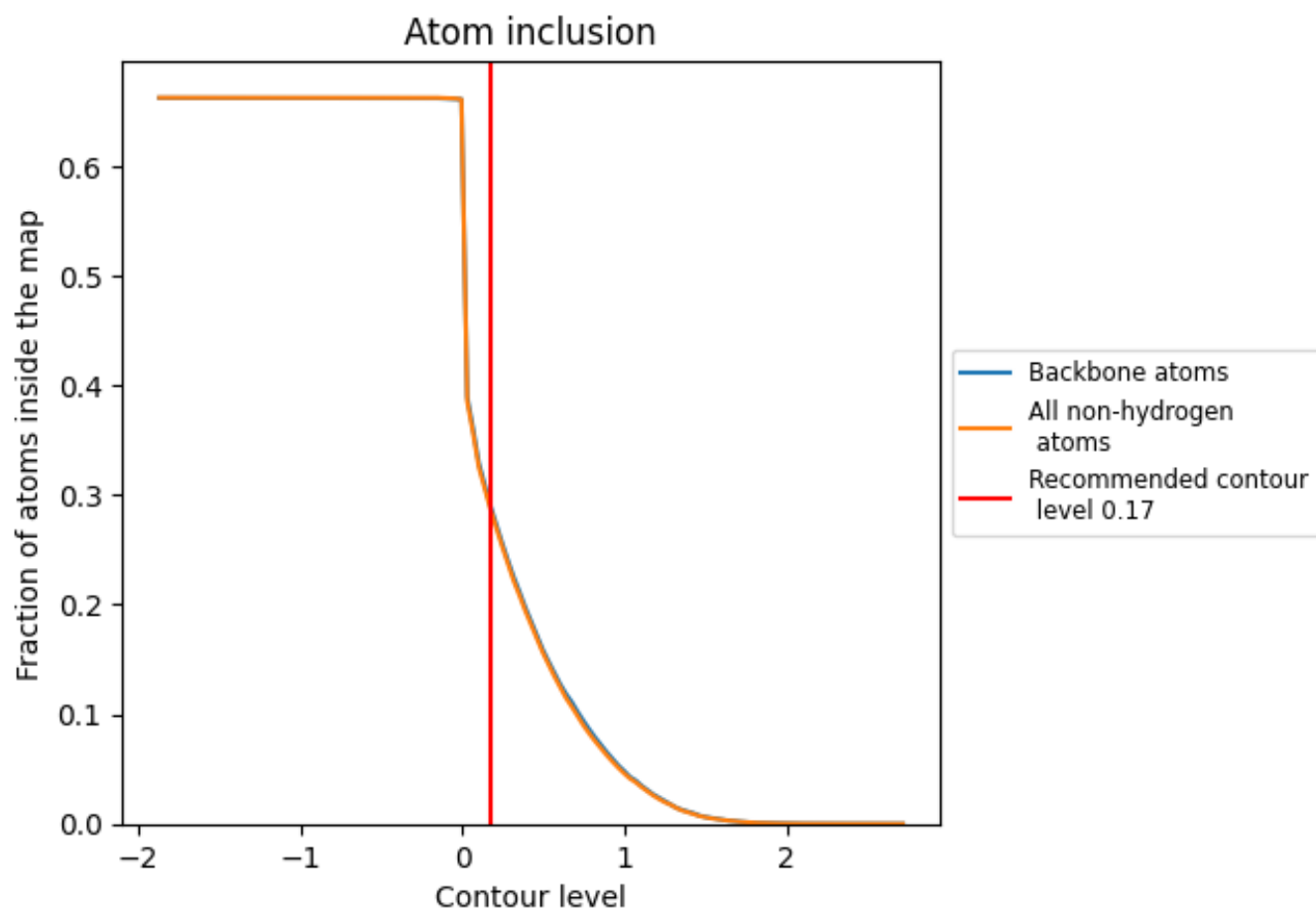
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.17).



































9.4 Atom inclusion [i](#)



At the recommended contour level, 29% of all backbone atoms, 29% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.17) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.2884	 0.1950
A	 0.4809	 0.3130
B	 0.8299	 0.5300
C	 0.3596	 0.2920
D	 0.7620	 0.4810
E	 0.0604	 0.0390
F	 0.7889	 0.5130
G	 0.0000	 -0.0020
H	 0.0000	 0.0010
I	 0.0000	 0.0000
J	 0.0000	 0.0000
K	 0.0000	 0.0000
L	 0.8214	 0.5480
M	 0.8214	 0.5450
N	 0.0000	 0.0000
O	 0.0000	 0.0000
P	 0.0000	 0.0000

