



Full wwPDB EM Validation Report ⓘ

Jun 25, 2025 – 01:54 PM JST

PDB ID : 7F5B / pdb_00007f5b
EMDB ID : EMD-31464
Title : LBD-TMD focused reconstruction of DNQX-bound GluK2-1xNeto2 complex
Authors : He, L.L.; Gao, Y.W.; Li, B.; Zhao, Y.
Deposited on : 2021-06-21
Resolution : 3.90 Å(reported)

This is a Full wwPDB EM 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/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.dev118
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0rc1
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.44

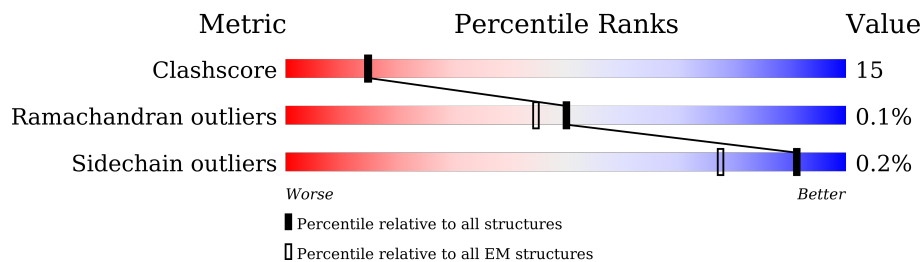
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.90 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	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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	908	
1	B	908	
1	C	908	
1	D	908	
2	E	525	
3	F	3	
3	G	3	

2 Entry composition [i](#)

There are 6 unique types of molecules in this entry. The entry contains 15328 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 Glutamate receptor ionotropic, kainate 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	437	Total	C	N	O	S	0	0
			3454	2230	563	639	22		
1	B	433	Total	C	N	O	S	0	0
			3416	2207	556	633	20		
1	C	437	Total	C	N	O	S	0	0
			3458	2232	563	641	22		
1	D	420	Total	C	N	O	S	0	0
			3315	2144	538	615	18		

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	107	LEU	PHE	engineered mutation	UNP P42260
A	567	VAL	ILE	variant	UNP P42260
A	571	CYS	TYR	variant	UNP P42260
B	107	LEU	PHE	engineered mutation	UNP P42260
B	567	VAL	ILE	variant	UNP P42260
B	571	CYS	TYR	variant	UNP P42260
C	107	LEU	PHE	engineered mutation	UNP P42260
C	567	VAL	ILE	variant	UNP P42260
C	571	CYS	TYR	variant	UNP P42260
D	107	LEU	PHE	engineered mutation	UNP P42260
D	567	VAL	ILE	variant	UNP P42260
D	571	CYS	TYR	variant	UNP P42260

- Molecule 2 is a protein called Neuropilin and tolloid-like protein 2.

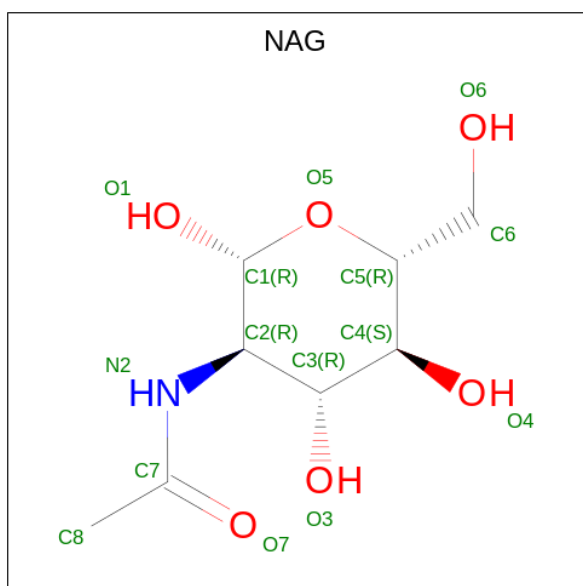
Mol	Chain	Residues	Atoms					AltConf	Trace
2	E	194	Total	C	N	O	S	0	0
			1506	955	259	277	15		

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



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

- Molecule 4 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: C₈H₁₅NO₆).



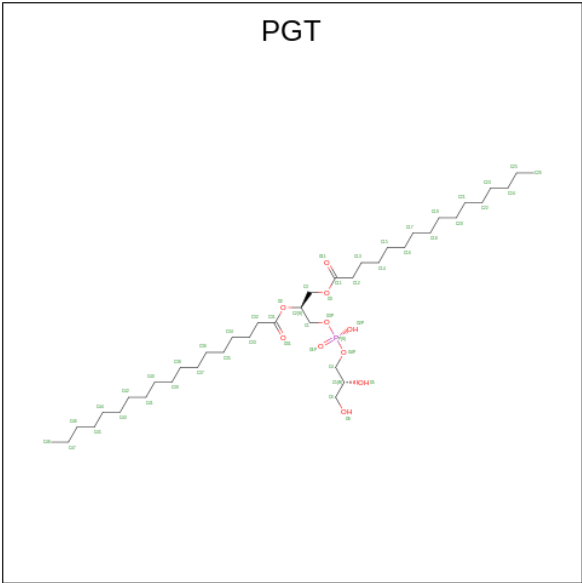
Mol	Chain	Residues	Atoms				AltConf
4	A	1	Total	C	N	O	0
			14	8	1	5	
4	A	1	Total	C	N	O	0
			14	8	1	5	
4	B	1	Total	C	N	O	0
			14	8	1	5	
4	C	1	Total	C	N	O	0
			14	8	1	5	
4	C	1	Total	C	N	O	0
			14	8	1	5	
4	D	1	Total	C	N	O	0
			14	8	1	5	

- Molecule 5 is CALCIUM ION (CCD ID: CA) (formula: Ca) (labeled as "Ligand of Interest")

by depositor).

Mol	Chain	Residues	Atoms		AltConf
5	B	1	Total	Ca	0
			1	1	

- Molecule 6 is (1S)-2-{{[(2R)-2,3-DIHYDROXYPROPYL]OXY}(HYDROXY)PHOSPHORYL]OXY}-1-[(PALMITOYLOXY)METHYL]ETHYL STEARATE (CCD ID: PGT) (formula: C₄₀H₇₉O₁₀P).



Mol	Chain	Residues	Atoms		AltConf
6	D	1	Total	C	0
			16	16	

MET
ALA

- Molecule 1: Glutamate receptor ionotropic, kainate 2

Chain B:



C858	S739	W640	I519	PRO	SER	LEU	GLN	ALA	GLN	ILE	GLY	VAL	ILE	GLY	VAL	MET
S859	I742	W641	V526	ASN	ILE	ALA	ALA	ASN	ALA	ILE	LEU	ASN	ASN	ILE	ASN	LYS
A860	T644			ILE	GLY	PRO	PRO	PRO	PRO	GLY	MET	ALA	ALA	ALA	CYS	LYS
M861	L752		F529	THR	ALA	PRO	PRO	THR	PRO	LYS	GLY	MET	LEU	ARG	ILE	LYS
W862	I755	Y651	S530	ASP	ALA	LYS	LYS	ASP	LYS	GLY	GLY	GLY	GLN	GLY	GLY	PRO
E863			K531	SER	HIS	ASP	PRO	SER	PRO	PRO	GLY	THR	ALA	ALA	THR	VAL
GLU		F658	L536	LEU	GLY	LEU	GLY	ASN	GLY	GLY	LEU	TYR	PRO	PRO	THR	THR
LEU		W763	G537	ASN	GLY	LEU	LEU	ASN	THR	THR	TYR	TYR	THR	THR	VAL	VAL
ARG	Y764	T660	L540	ILE	THR	LEU	LEU	R431	ASN	ASN	GLN	GLN	ASN	ASN	ASN	PHE
MET	G765	V661	L541	GLY	ARG	GLY	GLY	S432	ASP	ASP	THR	HIS	SER	SER	ARG	ASN
SER	W766	E662	Y542	THR	ILE	ILE	PHE	L433	GLY	GLY	TYR	TYR	TYR	TYR	THR	THR
LEU	M770	R663	R543	THR	THR	THR	THR	T437	ASN	TYR	ASN	PHE	ASN	ASN	GLN	GLN
LYS	R775	P667	N546	ASN	PHE	THR	THR	L439	LEU	ARG	LEU	THR	THR	THR	VAL	THR
CYS	I778	L674	N549	ASN	ASN	THR	THR	E440	THR	ASP	ARG	THR	THR	THR	VAL	TYR
GLN				LYS	LYS	THR	THR	E441	ALA	ASP	LEU	THR	THR	THR	ASP	ASN
ARG	I782	Q677	F553	THR	THR	ALA	ALA	P442	ALA	GLY	LEU	ASP	ASP	ASP	THR	THR
LEU	L785	T678		GLY	GLY	ALA	ALA	Y443	ALA	ASN	LEU	ASP	LEU	LEU	GLN	GLN
HIS	L765	K679	F553	GLY	GLY	LEU	LEU	V444	LEU	GLY	LEU	PHE	ARG	ARG	ILE	CYS
LYS		I680	L556	LEU	LEU	MET	MET		ALA	LEU	GLN	ASP	GLN	ASP	ILE	LYS
PRO	K790	E681	N557	ARG	ARG	TYR	TYR	K447	LEU	LEU	LEU	ASP	ASN	SER	ASN	LEU
GLN		Y682	P558	THR	THR	ASP	ASP	R448	LEU	PRO	PRO	PHE	SER	ASN	ASN	LEU
ALA	M794			ASP	ASP	ALA	ALA	S449	PRO	ALA	ALA	THR	THR	THR	THR	TRP
PRO	K795	E686	I563	PHE	PHE	VAL	VAL	D450	GLY	GLY	GLY	VAL	GLY	GLY	GLY	ILE
VAL	E796			ASP	LEU	VAL	VAL		HIS	HIS	PRO	THR	LYS	SER	SER	THR
ILE		M691	S575	ASP	LEU	VAL	VAL	K451	VAL	VAL	TYR	ARG	LYS	LYS	PHE	GLY
VAL	W799	T692		VAL	VAL	VAL	VAL	P452	VAL	VAL	ARG	THR	ASP	ASP	GLY	THR
THR	R800	F693	P586	VAL	VAL	VAL	VAL	L453	VAL	SER	TYR	THR	LYS	LYS	ALA	ALA
GLU	G801	F694		ILE	ILE	VAL	VAL		SER	GLY	TYR	GLY	ALA	PHE	THR	GLN
GLY		K695	W589	SER	SER	VAL	VAL	R458	LEU	LEU	VAL	ARG	LEU	ARG	LYS	LYS
ILE	E806	K696	H593	LYS	LYS	GLN	GLN		VAL	VAL	VAL	VAL	LEU	ALA	ALA	VAL
VAL	E807			GLY	GLY	GLN	GLN	L470	GLN	GLN	ASN	ASN	LEU	SER	CYS	VAL
ILE	E807	I699		GLY	GLY	PHE	PHE	S471	THR	THR	MET	MET	GLU	GLY	THR	GLY
ASN	E808	S700	D598	GLY	GLY	PRO	PRO	F476	THR	THR	THR	THR	ASN	ASN	THR	THR
MET	S809	T701	S599	LEU	LEU	GLN	GLN	T477	GLY	GLY	GLY	GLY	THR	THR	VAL	ALA
HIS	S809	Y702	D600	GLY	GLY	MET	MET	Y478	GLY	GLY	ARG	ARG	GLY	GLY	ASP	VAL
THR	K810		V601	THR	LYS	THR	THR	E479	ILE	ILE	ILE	ILE	LYS	LYS	ASP	GLY
PHE	L815	W705	W602	THR	LYS	THR	THR	I480	GLY	GLY	LEU	LEU	GLY	GLY	ASP	GLY
ASN	G816	W706	E603	THR	ILE	VAL	VAL	R481	GLY	GLY	LEU	LEU	GLY	LYS	ASP	GLY
ARG	Q818	M709	N604	THR	THR	VAL	VAL		THR	THR	ASN	ASN	THR	THR	VAL	GLY
LEU			F606	ASP	ASP	GLN	GLN	D492	TRP	TRP	GLU	GLU	GLY	GLY	VAL	ALA
PRO	I823	R712	T607	PRO	PRO	ASN	ASN		GLY	GLY	GLU	GLU	GLY	GLY	ILE	VAL
GLY	F824		L608	ALA	ALA	ARG	ARG	Q497	THR	THR	THR	THR	THR	THR	ILE	GLY
GLY	I825	W716	L609	SER	SER	THR	THR	W498	GLY	GLY	VAL	VAL	VAL	VAL	GLY	GLY
THR	K845	W718	M610	GLY	GLY	HIS	HIS		GLY	GLY	ASP	ASP	THR	THR	THR	GLY
MET			S611	THR	THR	PRO	PRO		GLY	GLY	GLN	GLN	GLN	GLN	GLY	GLY
ALA		E723	F612	ASN	ASN	THR	THR	M501	ASN	ASN	THR	THR	THR	THR	THR	THR
				LYS	LYS	ARG	ARG	V502	LYS	LYS	VAL	VAL	VAL	VAL	VAL	VAL
				VAL	VAL	THR	THR	R503	THR	THR	THR	THR	THR	THR	THR	THR
				THR	THR	THR	THR	E504	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY
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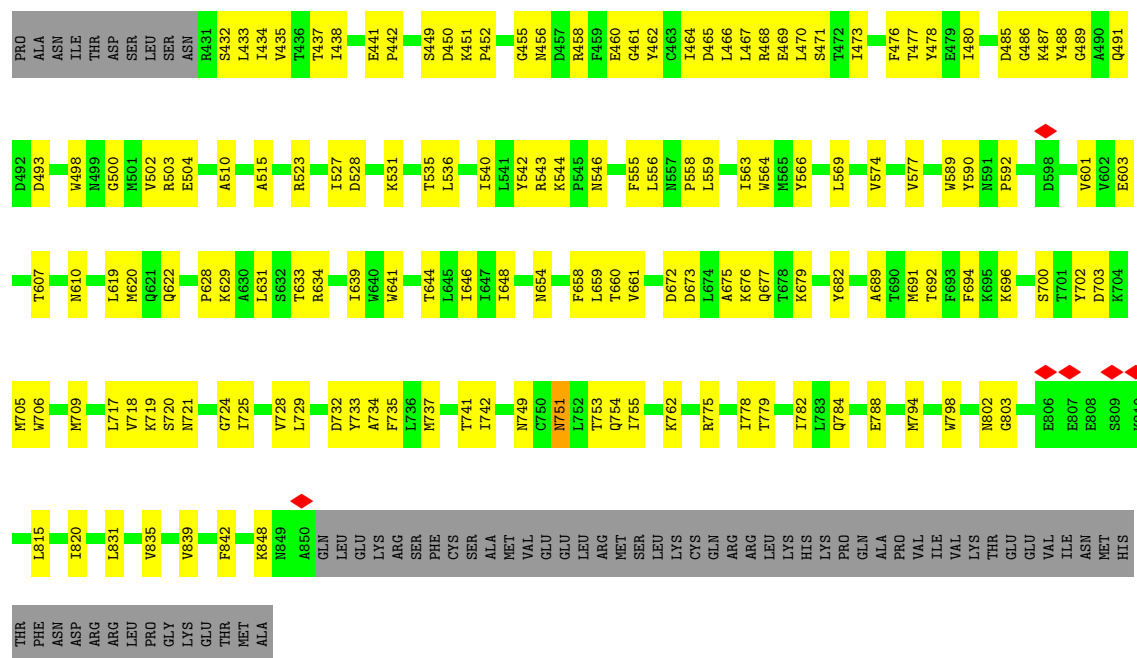
- Molecule 1: Glutamate receptor ionotropic, kainate 2

Chain C:

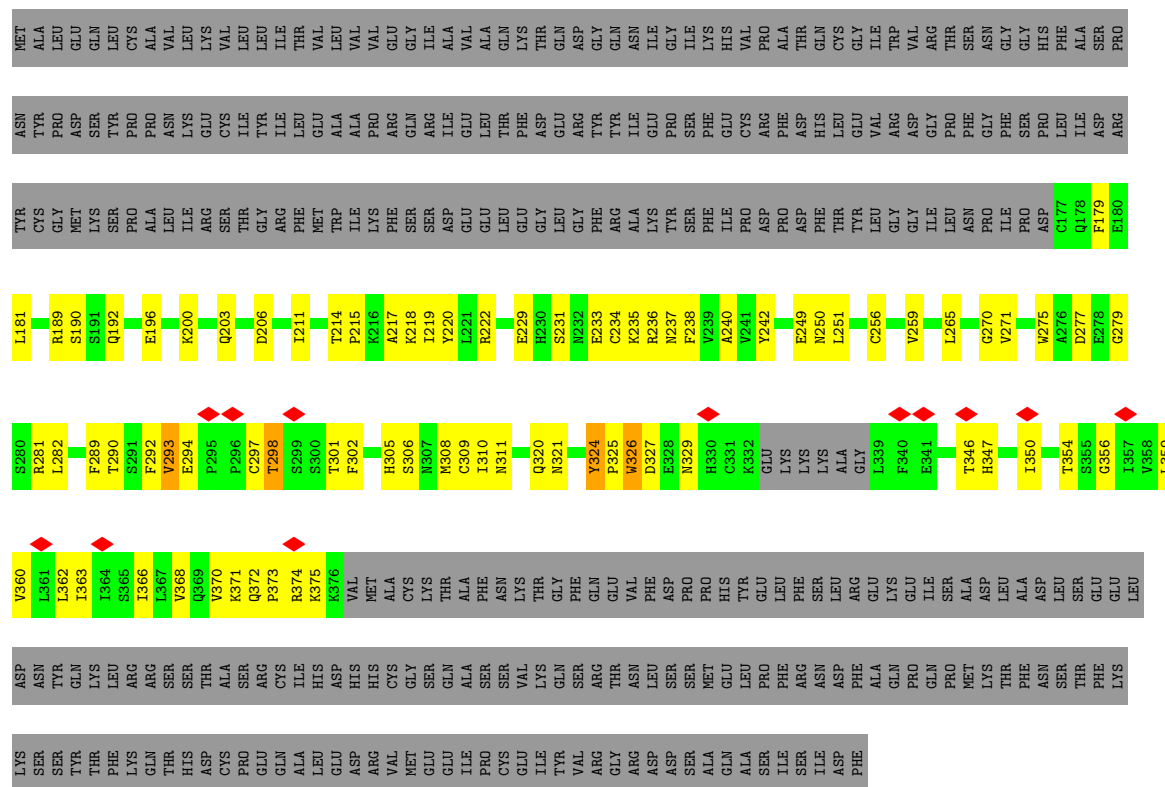


MET	LYS	ILE	ILE	SER	PRO	VAL	LEU	SER	ASN	LEU	VAL	PHE	ASN	THR	THR	THR	ARG	SER	ILE	LYS	VAL	LEU	LEU	CYS	LEU	LEU	TRP	ILE	GLY	SER	TYR	THR	GLN	GLY	THR	THR	HIS	VAL	LEU	ARG	GLY	ILE	PHE	GLU	TYR	VAL	ALA	ILE	GLU	SER	PRO	MET	GLY	ALA	LEU	PHE	ARG	PHE	ALA																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
VAL	ASN	THR	ILE	ASN	ARG	ASN	ARG	ARG	THR	LEU	LEU	PRO	ASN	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR





• Molecule 2: Neuropilin and tolloid-like protein 2



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

Chain F:  67% 33%



- 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:  33% 67%



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	148300	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	60	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	4.454	Depositor
Minimum map value	-2.355	Depositor
Average map value	0.003	Depositor
Map value standard deviation	0.091	Depositor
Recommended contour level	0.514	Depositor
Map size ($\text{\AA}$)	348.16, 348.16, 348.16	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	1.36, 1.36, 1.36	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: NAG, CA, BMA, PGT

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	0.18	0/3532	0.43	0/4780
1	B	0.17	0/3494	0.47	0/4732
1	C	0.17	0/3536	0.44	0/4786
1	D	0.19	0/3392	0.46	1/4597 (0.0%)
2	E	0.34	0/1533	0.67	1/2069 (0.0%)
All	All	0.20	0/15487	0.48	2/20964 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	293	VAL	N-CA-C	-6.54	104.64	111.58
1	D	751	ASN	N-CA-C	-5.67	105.77	114.16

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3454	0	3448	119	0
1	B	3416	0	3410	108	0
1	C	3458	0	3458	103	0
1	D	3315	0	3308	107	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	E	1506	0	1495	64	0
3	F	39	0	34	1	0
3	G	39	0	34	1	0
4	A	28	0	26	1	0
4	B	14	0	13	0	0
4	C	28	0	26	1	0
4	D	14	0	13	0	0
5	B	1	0	0	0	0
6	D	16	0	31	0	0
All	All	15328	0	15296	459	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 15.

All (459) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:747:GLN:HB3	1:A:803:GLY:HA2	1.59	0.85
1:D:489:GLY:O	1:D:523:ARG:NH1	2.11	0.83
2:E:293:VAL:HG22	2:E:308:MET:SD	2.22	0.80
2:E:237:ASN:HA	2:E:275:TRP:O	1.84	0.78
2:E:214:THR:HG23	2:E:215:PRO:HD2	1.67	0.77
1:A:631:LEU:HD21	1:B:609:LEU:HD11	1.67	0.77
1:C:747:GLN:HB3	1:C:803:GLY:HA2	1.67	0.75
1:D:558:PRO:HB2	1:D:654:ASN:HB3	1.68	0.75
1:D:489:GLY:HA3	1:D:502:VAL:HG23	1.69	0.75
1:A:613:TRP:HB3	1:D:634:ARG:HE	1.52	0.73
1:A:798:TRP:O	1:A:802:ASN:ND2	2.21	0.72
2:E:359:LEU:HD23	2:E:362:LEU:HD12	1.72	0.72
2:E:362:LEU:O	2:E:366:ILE:HG12	1.91	0.71
1:C:537:GLY:HA3	1:C:758:LEU:HD12	1.74	0.70
2:E:326:TRP:N	2:E:329:ASN:OD1	2.21	0.70
1:D:441:GLU:HB3	1:D:442:PRO:HD3	1.72	0.70
1:A:646:ILE:HG21	1:B:823:ILE:HG21	1.74	0.70
1:D:546:ASN:HB2	3:G:1:NAG:H2	1.74	0.69
1:D:470:LEU:HD13	1:D:778:ILE:HD11	1.73	0.69
1:A:674:LEU:HB3	1:A:682:TYR:HE1	1.57	0.68
1:A:791:LEU:HA	1:A:794:MET:HE2	1.74	0.68
1:B:691:MET:HA	1:B:694:PHE:HB3	1.74	0.68
1:C:441:GLU:HB2	1:C:442:PRO:HD3	1.76	0.68
2:E:200:LYS:HE2	2:E:203:GLN:HE22	1.58	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:452:PRO:HG3	2:E:256:CYS:HB2	1.77	0.67
1:B:628:PRO:HB3	1:B:633:THR:HG23	1.76	0.67
1:D:486:GLY:O	1:D:487:LYS:HG2	1.95	0.66
2:E:217:ALA:HB1	2:E:292:PHE:H	1.61	0.66
1:B:674:LEU:O	1:B:682:TYR:OH	2.12	0.66
2:E:214:THR:HB	2:E:292:PHE:CZ	2.31	0.66
1:C:541:LEU:HD11	1:C:752:LEU:HB3	1.78	0.66
1:C:483:VAL:HG11	1:C:500:GLY:HA2	1.78	0.66
1:D:628:PRO:HB3	1:D:633:THR:HG23	1.78	0.65
1:A:677:GLN:HE22	1:A:680:ILE:H	1.44	0.65
1:D:433:LEU:HD13	1:D:476:PHE:HD1	1.61	0.65
1:D:471:SER:HA	1:D:476:PHE:HD2	1.60	0.65
1:C:536:LEU:HD22	1:C:764:TYR:CE1	2.32	0.65
1:D:432:SER:HA	1:D:477:THR:HB	1.78	0.65
2:E:214:THR:CG2	2:E:215:PRO:HD2	2.26	0.65
1:B:492:ASP:HB2	1:B:497:GLN:HB3	1.79	0.65
1:A:558:PRO:O	1:A:654:ASN:ND2	2.30	0.64
1:B:479:GLU:OE1	1:B:481:ARG:NH2	2.31	0.64
1:D:502:VAL:HG22	1:D:527:ILE:HD11	1.79	0.64
1:A:470:LEU:HD22	1:A:778:ILE:HD11	1.80	0.64
1:C:842:PHE:HD1	1:C:845:LYS:HZ3	1.43	0.64
1:C:470:LEU:HD13	1:C:778:ILE:HD11	1.78	0.64
1:C:531:LYS:H	1:C:779:THR:HG22	1.62	0.63
1:A:535:THR:HG21	1:D:535:THR:HG21	1.80	0.63
1:C:558:PRO:O	1:C:654:ASN:ND2	2.32	0.62
1:C:728:VAL:HG22	1:C:733:TYR:HB3	1.81	0.62
1:D:592:PRO:HD3	1:D:603:GLU:HB2	1.83	0.61
1:B:628:PRO:HB2	1:B:634:ARG:HG3	1.83	0.61
1:A:776:ASP:OD1	1:A:777:LYS:N	2.33	0.60
2:E:302:PHE:HE2	2:E:327:ASP:HA	1.66	0.60
1:A:498:TRP:HH2	1:A:522:VAL:HG12	1.66	0.60
1:D:737:MET:HE2	1:D:741:THR:HB	1.83	0.60
1:D:555:PHE:CZ	1:D:820:ILE:HG22	2.37	0.60
1:D:700:SER:HA	1:D:703:ASP:HB2	1.84	0.60
2:E:189:ARG:HB3	2:E:192:GLN:HB2	1.84	0.59
1:C:795:LYS:O	1:C:799:TRP:HB2	2.03	0.59
2:E:242:TYR:HD1	2:E:251:LEU:HA	1.66	0.59
1:C:528:ASP:OD1	1:C:775:ARG:NH1	2.36	0.59
1:D:536:LEU:HD23	1:D:762:LYS:HE2	1.85	0.59
1:A:681:GLU:HB3	1:A:716:VAL:HG11	1.84	0.59
1:B:661:VAL:HG11	1:C:663:ARG:HG2	1.83	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:702:TYR:HA	1:B:705:MET:HE2	1.84	0.59
1:B:694:PHE:HZ	1:B:705:MET:HB2	1.69	0.58
2:E:236:ARG:NH2	2:E:277:ASP:O	2.36	0.58
1:C:674:LEU:O	1:C:682:TYR:OH	2.21	0.58
1:C:680:ILE:HG23	1:C:732:ASP:HB2	1.86	0.58
1:D:691:MET:HE2	1:D:717:LEU:HD21	1.86	0.58
1:B:705:MET:O	1:B:709:MET:HG3	2.03	0.58
1:C:596:ASN:OD1	1:C:596:ASN:O	2.21	0.58
1:B:718:VAL:HB	1:B:723:GLU:HB3	1.85	0.58
1:D:718:VAL:HG22	1:D:719:LYS:H	1.69	0.58
1:B:543:ARG:NH2	1:B:729:LEU:O	2.37	0.57
1:D:802:ASN:OD1	1:D:803:GLY:N	2.37	0.57
1:A:675:ALA:HB1	1:A:704:LYS:HD2	1.85	0.57
1:A:714:GLN:HA	1:A:717:LEU:HB2	1.87	0.57
1:D:531:LYS:H	1:D:779:THR:HG22	1.70	0.57
1:D:705:MET:O	1:D:709:MET:HG3	2.04	0.57
1:A:818:GLN:N	1:D:563:ILE:HD11	2.19	0.57
1:D:491:GLN:HB3	1:D:498:TRP:CD2	2.40	0.57
1:B:549:ASN:O	1:B:818:GLN:NE2	2.38	0.56
1:D:590:TYR:OH	1:D:629:LYS:NZ	2.26	0.56
1:B:607:THR:HG23	1:B:610:ASN:H	1.70	0.56
1:B:692:THR:O	1:B:696:LYS:NZ	2.39	0.56
1:A:431:ARG:NH1	1:A:432:SER:O	2.39	0.56
1:C:444:VAL:HG13	1:C:464:ILE:HD11	1.86	0.56
1:C:497:GLN:HG3	1:C:498:TRP:H	1.71	0.56
2:E:238:PHE:HE1	2:E:275:TRP:HE3	1.53	0.56
1:A:682:TYR:HA	1:A:734:ALA:HB3	1.88	0.56
1:C:540:ILE:HG22	1:C:736:LEU:HG	1.87	0.56
2:E:359:LEU:O	2:E:363:ILE:HG12	2.06	0.56
1:B:681:GLU:HB2	1:B:712:ARG:HH22	1.71	0.56
1:C:589:TRP:HE3	1:C:603:GLU:HA	1.71	0.56
2:E:211:ILE:HB	2:E:270:GLY:HA3	1.87	0.56
1:B:558:PRO:HG2	1:B:651:TYR:HE1	1.70	0.55
1:B:790:LYS:HG2	1:B:794:MET:HE2	1.89	0.55
1:B:845:LYS:HA	1:B:848:LYS:HE2	1.87	0.55
2:E:238:PHE:HE2	2:E:240:ALA:HB2	1.71	0.55
1:D:566:TYR:HD1	1:D:569:LEU:HD21	1.69	0.55
1:A:645:LEU:HD12	1:B:620:MET:HG3	1.88	0.55
1:A:718:VAL:HG12	1:A:720:SER:H	1.72	0.55
1:C:861:MET:O	1:C:865:LEU:HB2	2.06	0.55
1:A:434:ILE:HG23	1:A:510:ALA:HA	1.89	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:682:TYR:HB3	1:D:734:ALA:HB3	1.88	0.55
1:D:784:GLN:O	1:D:788:GLU:HB2	2.07	0.55
1:A:555:PHE:CD1	1:D:646:ILE:HG21	2.42	0.55
1:D:460:GLU:OE1	1:D:461:GLY:N	2.39	0.55
1:D:659:LEU:HD21	1:D:815:LEU:HD21	1.88	0.55
1:B:440:GLU:HG3	1:B:516:PRO:HG2	1.88	0.55
1:C:546:ASN:OD1	1:C:547:GLY:N	2.40	0.55
1:C:774:TYR:HA	1:C:777:LYS:HD2	1.89	0.55
1:A:692:THR:HA	1:A:695:LYS:HE3	1.88	0.54
1:B:530:SER:O	1:C:531:LYS:NZ	2.40	0.54
2:E:301:THR:HA	2:E:311:ASN:HB3	1.88	0.54
1:B:709:MET:HB3	1:B:716:VAL:HG11	1.89	0.54
1:B:766:VAL:HG21	1:B:778:ILE:HD13	1.89	0.54
1:C:586:PRO:HG3	1:D:842:PHE:HA	1.88	0.54
1:D:498:TRP:O	1:D:503:ARG:HG2	2.07	0.54
1:A:519:ILE:HG12	1:A:529:PHE:CD2	2.43	0.54
1:D:468:ARG:HA	1:D:478:TYR:OH	2.06	0.54
1:A:546:ASN:HB2	4:A:1002:NAG:HN2	1.73	0.54
1:A:674:LEU:O	1:A:682:TYR:OH	2.15	0.54
1:C:519:ILE:HG23	1:C:529:PHE:HD2	1.73	0.53
1:C:538:ILE:HG12	1:C:690:THR:HG23	1.89	0.53
1:D:434:ILE:HB	1:D:510:ALA:HA	1.91	0.53
1:A:796:GLU:O	1:A:801:GLY:N	2.41	0.53
1:A:664:MET:HA	1:D:661:VAL:HG11	1.91	0.53
1:A:434:ILE:HD11	1:A:481:ARG:HG3	1.90	0.53
2:E:290:THR:HG21	2:E:321:ASN:O	2.09	0.53
1:D:728:VAL:HA	1:D:733:TYR:HB3	1.90	0.53
1:B:531:LYS:HZ1	1:C:519:ILE:HD13	1.74	0.53
1:C:603:GLU:HG2	1:C:604:ASN:H	1.74	0.53
1:A:558:PRO:HB3	1:A:654:ASN:HB3	1.90	0.52
1:A:712:ARG:HB3	1:A:715:SER:HB2	1.91	0.52
1:A:441:GLU:HB3	1:A:442:PRO:HD3	1.91	0.52
1:A:640:TRP:O	1:A:644:THR:HG23	2.09	0.52
1:C:753:THR:HG23	1:C:755:ILE:HG13	1.90	0.52
1:D:527:ILE:HG22	1:D:528:ASP:N	2.25	0.52
1:C:569:LEU:HD12	2:E:359:LEU:HD12	1.91	0.52
1:C:432:SER:HA	1:C:477:THR:HB	1.92	0.52
1:D:455:GLY:O	1:D:458:ARG:NE	2.33	0.52
1:A:721:ASN:HA	1:A:735:PHE:HZ	1.74	0.52
1:A:788:GLU:HG3	1:D:696:LYS:HZ1	1.75	0.52
1:A:499:ASN:OD1	1:A:500:GLY:N	2.42	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:823:ILE:HD12	1:A:825:ILE:HG12	1.92	0.52
1:B:433:LEU:N	1:B:477:THR:O	2.43	0.52
1:A:609:LEU:HD22	1:D:631:LEU:HD23	1.92	0.51
1:B:699:ILE:HG13	1:B:700:SER:H	1.75	0.51
1:D:555:PHE:HZ	1:D:820:ILE:HG22	1.75	0.51
1:A:436:THR:HG22	1:A:437:THR:H	1.74	0.51
1:B:452:PRO:C	1:B:453:LEU:HD12	2.36	0.51
1:B:498:TRP:O	1:B:503:ARG:HB2	2.10	0.51
1:C:713:ARG:O	1:C:714:GLN:HG2	2.10	0.51
1:C:543:ARG:NH2	4:C:1001:NAG:H4	2.26	0.51
2:E:218:LYS:CD	2:E:294:GLU:HB2	2.40	0.51
1:D:574:VAL:HA	1:D:577:VAL:HG12	1.92	0.51
2:E:214:THR:CB	2:E:292:PHE:CZ	2.94	0.51
2:E:320:GLN:HE22	2:E:324:TYR:C	2.19	0.51
1:D:528:ASP:OD1	1:D:775:ARG:HD3	2.11	0.51
2:E:236:ARG:HB3	2:E:277:ASP:HB3	1.93	0.51
2:E:290:THR:HG21	2:E:321:ASN:HB2	1.92	0.51
1:A:719:LYS:HG3	1:A:723:GLU:OE2	2.11	0.51
1:A:645:LEU:HD11	1:B:620:MET:HA	1.92	0.51
1:C:438:ILE:HD11	1:C:501:MET:HE3	1.93	0.51
1:C:681:GLU:HB3	1:C:716:VAL:HG21	1.93	0.51
1:A:800:ARG:C	1:A:803:GLY:H	2.20	0.50
2:E:371:LYS:C	2:E:374:ARG:HH22	2.20	0.50
1:B:447:LYS:HE3	1:B:458:ARG:HA	1.93	0.50
1:B:546:ASN:HB3	3:F:1:NAG:C7	2.40	0.50
1:C:749:ASN:OD1	1:C:750:CYS:N	2.33	0.50
1:B:695:LYS:HG3	1:B:706:TRP:CZ2	2.46	0.50
1:D:435:VAL:HG11	1:D:467:LEU:HD11	1.94	0.50
1:B:558:PRO:HA	1:B:658:PHE:CE2	2.47	0.50
1:D:462:TYR:HB2	1:D:798:TRP:CD1	2.46	0.50
1:D:556:LEU:HG	1:D:564:TRP:CE2	2.47	0.50
1:D:742:ILE:HG21	1:D:754:GLN:HG3	1.93	0.50
1:A:543:ARG:HA	1:A:752:LEU:HA	1.94	0.50
1:A:732:ASP:N	1:A:732:ASP:OD1	2.44	0.50
1:A:527:ILE:HG22	1:A:528:ASP:H	1.77	0.50
1:C:603:GLU:OE1	2:E:375:LYS:HG2	2.11	0.50
1:B:737:MET:HG3	1:B:742:ILE:HG13	1.94	0.50
1:C:624:SER:OG	1:C:625:GLU:N	2.44	0.50
1:D:450:ASP:OD1	1:D:451:LYS:N	2.44	0.50
1:D:696:LYS:O	1:D:696:LYS:HG2	2.12	0.50
1:A:538:ILE:HD13	1:A:760:ASP:HB3	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:695:LYS:O	1:B:696:LYS:HG2	2.12	0.49
1:B:512:LEU:HD13	1:B:778:ILE:HD12	1.94	0.49
1:B:728:VAL:HA	1:B:733:TYR:HB3	1.93	0.49
1:C:683:GLY:HA3	1:C:733:TYR:OH	2.11	0.49
1:A:594:PRO:HG2	1:B:593:HIS:HB2	1.94	0.49
1:A:728:VAL:HG22	1:A:733:TYR:HB3	1.94	0.49
1:B:641:TRP:HB3	1:C:620:MET:HG2	1.93	0.49
1:C:521:TYR:CZ	1:C:525:LYS:HE3	2.47	0.49
1:B:441:GLU:HB3	1:B:442:PRO:HD3	1.95	0.49
1:C:466:LEU:HA	1:C:794:MET:HE1	1.94	0.49
1:C:705:MET:O	1:C:709:MET:HG2	2.13	0.49
1:C:750:CYS:SG	1:C:751:ASN:N	2.85	0.49
1:B:470:LEU:HD21	1:B:778:ILE:HD11	1.94	0.49
1:C:552:VAL:HG23	1:C:553:PHE:HD1	1.76	0.49
2:E:305:HIS:CG	2:E:306:SER:N	2.80	0.49
1:A:830:GLY:HA3	1:D:639:ILE:HG13	1.95	0.49
1:B:437:THR:HG21	1:B:444:VAL:HG11	1.95	0.49
1:B:537:GLY:O	1:B:739:SER:N	2.45	0.49
1:B:682:TYR:CZ	1:B:705:MET:HG2	2.47	0.49
2:E:279:GLY:O	2:E:282:LEU:HG	2.13	0.49
1:C:443:TYR:CD2	1:C:516:PRO:HG2	2.47	0.49
1:C:516:PRO:HB3	1:C:764:TYR:CE2	2.48	0.49
1:C:519:ILE:HG12	1:C:529:PHE:CD2	2.48	0.49
1:B:658:PHE:CZ	1:C:815:LEU:HB2	2.48	0.48
1:C:536:LEU:HG	1:C:537:GLY:H	1.77	0.48
1:B:851:GLN:HG3	1:B:852:LEU:H	1.77	0.48
1:B:815:LEU:HA	1:B:815:LEU:HD23	1.72	0.48
1:D:542:TYR:HB3	1:D:755:ILE:HD12	1.95	0.48
2:E:366:ILE:O	2:E:370:VAL:HG23	2.13	0.48
1:C:603:GLU:HG2	1:C:604:ASN:N	2.28	0.48
1:A:498:TRP:HE1	1:A:526:VAL:HG11	1.79	0.48
1:A:555:PHE:CE1	1:D:646:ILE:HG21	2.48	0.48
1:D:456:ASN:HD22	1:D:478:TYR:HB2	1.79	0.48
2:E:219:ILE:HB	2:E:265:LEU:HB2	1.96	0.48
1:C:804:CYS:N	1:C:805:PRO:HD3	2.29	0.48
2:E:302:PHE:O	2:E:309:CYS:HA	2.13	0.48
1:D:732:ASP:N	1:D:732:ASP:OD1	2.46	0.47
1:A:613:TRP:CB	1:D:634:ARG:HE	2.23	0.47
1:C:442:PRO:HB3	1:C:744:PHE:CD1	2.48	0.47
1:C:544:LYS:HG2	1:C:751:ASN:HA	1.96	0.47
1:A:537:GLY:HA3	1:A:758:LEU:HG	1.95	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:556:LEU:HD23	1:A:564:TRP:CD1	2.48	0.47
1:B:558:PRO:HA	1:B:658:PHE:HE2	1.79	0.47
2:E:298:THR:H	2:E:301:THR:HG22	1.79	0.47
1:C:724:GLY:HA3	1:C:735:PHE:CE1	2.49	0.47
1:D:527:ILE:HG22	1:D:528:ASP:H	1.79	0.47
2:E:181:LEU:O	2:E:211:ILE:HA	2.14	0.47
1:A:692:THR:HA	1:A:695:LYS:HG2	1.97	0.47
1:B:663:ARG:NH1	1:C:663:ARG:O	2.47	0.47
1:D:820:ILE:O	1:D:820:ILE:HG13	2.14	0.47
2:E:179:PHE:HB2	2:E:196:GLU:OE2	2.14	0.47
1:B:498:TRP:HB2	1:B:503:ARG:HD3	1.96	0.47
1:C:677:GLN:NE2	1:C:680:ILE:HG12	2.30	0.47
1:D:456:ASN:HB2	1:D:480:ILE:HD13	1.95	0.47
1:C:640:TRP:O	1:C:644:THR:HG23	2.15	0.47
1:A:555:PHE:HB3	1:A:556:LEU:HD12	1.96	0.47
1:A:718:VAL:HG13	1:A:723:GLU:HG3	1.97	0.47
1:D:469:GLU:O	1:D:473:ILE:HG12	2.14	0.47
1:A:815:LEU:HD12	1:D:658:PHE:HE1	1.80	0.47
1:B:778:ILE:O	1:B:782:ILE:HG13	2.15	0.47
1:C:672:ASP:N	1:C:672:ASP:OD1	2.45	0.47
1:A:474:LEU:HB3	1:A:476:PHE:HE2	1.80	0.46
1:A:502:VAL:HG13	1:A:527:ILE:HD11	1.97	0.46
1:D:491:GLN:HB3	1:D:498:TRP:CE2	2.49	0.46
1:A:436:THR:HG22	1:A:437:THR:N	2.30	0.46
1:B:640:TRP:O	1:B:644:THR:HG23	2.15	0.46
1:A:474:LEU:HB3	1:A:476:PHE:CE2	2.50	0.46
1:A:852:LEU:HB3	1:A:855:ARG:HB3	1.98	0.46
1:C:792:HIS:O	1:C:796:GLU:HG2	2.14	0.46
1:D:831:LEU:O	1:D:835:VAL:HG23	2.15	0.46
1:A:587:TYR:HB2	1:A:630:ALA:HB2	1.98	0.46
1:D:489:GLY:HA2	1:D:500:GLY:HA3	1.97	0.46
1:A:619:LEU:HA	1:A:644:THR:CG2	2.46	0.46
1:C:526:VAL:HG23	1:C:527:ILE:HG12	1.98	0.46
1:A:823:ILE:O	1:A:823:ILE:HG13	2.16	0.46
1:B:677:GLN:OE1	1:B:679:LYS:N	2.49	0.46
1:B:853:GLU:OE2	1:B:855:ARG:NH1	2.49	0.46
1:C:589:TRP:H	1:C:589:TRP:CD1	2.34	0.46
1:B:601:VAL:HG22	1:B:603:GLU:HG2	1.98	0.46
2:E:292:PHE:HB2	2:E:310:ILE:HA	1.98	0.46
1:B:471:SER:HA	1:B:476:PHE:CE2	2.51	0.46
1:B:541:LEU:HD11	1:B:752:LEU:HB3	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:206:ASP:N	2:E:206:ASP:OD1	2.48	0.46
2:E:346:THR:OG1	2:E:347:HIS:N	2.49	0.46
1:A:431:ARG:HG2	1:A:432:SER:H	1.81	0.46
1:A:748:ARG:HA	1:A:748:ARG:NE	2.31	0.46
1:D:720:SER:OG	1:D:721:ASN:N	2.49	0.46
1:C:575:SER:OG	1:C:612:PHE:HA	2.16	0.45
1:A:672:ASP:O	1:A:676:LYS:HG2	2.15	0.45
1:C:677:GLN:HE22	1:C:679:LYS:HB2	1.81	0.45
1:D:502:VAL:HG13	1:D:527:ILE:HD11	1.99	0.45
1:D:675:ALA:O	1:D:676:LYS:HG2	2.15	0.45
1:D:619:LEU:HD12	1:D:644:THR:OG1	2.16	0.45
1:A:562:ASP:OD1	1:A:562:ASP:N	2.48	0.45
1:B:531:LYS:HE3	1:C:532:PRO:HD3	1.98	0.45
2:E:220:TYR:HE1	2:E:222:ARG:HD3	1.81	0.45
1:B:519:ILE:HG23	1:B:529:PHE:CD2	2.51	0.45
1:C:800:ARG:HA	1:C:803:GLY:HA3	1.99	0.45
1:D:794:MET:HE3	1:D:794:MET:HB2	1.81	0.45
2:E:242:TYR:HD2	2:E:271:VAL:HG11	1.82	0.45
1:B:694:PHE:CZ	1:B:705:MET:HE3	2.52	0.45
2:E:372:GLN:HB3	2:E:373:PRO:HD3	1.98	0.45
1:A:648:ILE:HD13	1:A:648:ILE:HA	1.84	0.44
1:B:526:VAL:C	1:B:770:MET:HE2	2.43	0.44
1:B:775:ARG:O	1:B:778:ILE:HG22	2.17	0.44
1:D:438:ILE:HG21	1:D:488:TYR:HE1	1.82	0.44
1:A:677:GLN:NE2	1:A:680:ILE:H	2.13	0.44
1:B:447:LYS:HD2	1:B:453:LEU:HD23	1.98	0.44
1:B:681:GLU:OE1	1:B:681:GLU:N	2.51	0.44
1:A:622:GLN:HG3	1:D:641:TRP:CD1	2.53	0.44
1:A:702:TYR:HA	1:A:705:MET:HE2	1.98	0.44
1:D:493:ASP:N	1:D:493:ASP:OD1	2.50	0.44
1:D:672:ASP:OD1	1:D:673:ASP:N	2.51	0.44
2:E:290:THR:CG2	2:E:321:ASN:HB2	2.48	0.44
2:E:356:GLY:O	2:E:360:VAL:HG23	2.18	0.44
1:A:438:ILE:HD11	1:A:501:MET:HG3	1.99	0.44
1:A:685:VAL:HG13	1:A:685:VAL:O	2.18	0.44
1:A:861:MET:O	1:A:865:LEU:HB2	2.17	0.44
1:C:536:LEU:HD11	1:C:738:GLU:HB2	1.99	0.44
1:C:473:ILE:HG23	1:C:474:LEU:HG	1.99	0.44
2:E:234:CYS:SG	2:E:238:PHE:HB3	2.58	0.44
1:A:436:THR:HA	1:A:481:ARG:O	2.17	0.44
1:A:720:SER:OG	1:A:723:GLU:HG2	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:790:LYS:O	1:B:794:MET:HG2	2.18	0.44
1:D:677:GLN:NE2	1:D:679:LYS:HB3	2.33	0.44
1:A:541:LEU:HG	1:A:742:ILE:HG12	1.99	0.44
1:A:775:ARG:O	1:A:778:ILE:HG22	2.18	0.44
1:B:601:VAL:O	1:B:601:VAL:HG13	2.18	0.44
1:C:724:GLY:O	1:C:728:VAL:HG23	2.17	0.44
2:E:214:THR:CG2	2:E:215:PRO:CD	2.95	0.44
1:A:866:ARG:HA	1:A:866:ARG:HD3	1.90	0.43
1:B:531:LYS:NZ	1:C:519:ILE:HD13	2.32	0.43
1:C:817:VAL:HG13	1:C:819:ASN:H	1.83	0.43
1:A:540:ILE:HG13	1:A:736:LEU:HD22	1.99	0.43
1:A:544:LYS:O	1:A:546:ASN:N	2.47	0.43
1:A:608:LEU:HD12	1:A:609:LEU:N	2.32	0.43
1:A:654:ASN:OD1	1:B:659:LEU:HD21	2.18	0.43
1:B:800:ARG:HG3	1:B:801:GLY:O	2.19	0.43
1:C:737:MET:HE2	1:C:741:THR:OG1	2.18	0.43
2:E:234:CYS:O	2:E:235:LYS:HD3	2.18	0.43
1:A:845:LYS:O	1:A:849:ASN:HB2	2.17	0.43
1:B:443:TYR:CE1	1:B:799:TRP:HZ2	2.36	0.43
1:B:563:ILE:HD11	1:C:818:GLN:N	2.33	0.43
1:C:460:GLU:C	1:C:464:ILE:HD13	2.44	0.43
1:B:806:GLU:O	1:B:810:LYS:NZ	2.45	0.43
1:A:699:ILE:HB	1:A:702:TYR:CD2	2.54	0.43
1:B:563:ILE:H	1:B:563:ILE:HD12	1.83	0.43
1:C:479:GLU:OE1	1:C:481:ARG:NH2	2.51	0.43
1:D:749:ASN:O	1:D:751:ASN:N	2.51	0.43
1:B:536:LEU:HD21	1:B:764:TYR:CE2	2.54	0.43
2:E:368:VAL:O	2:E:372:GLN:HB2	2.18	0.43
1:B:575:SER:HB2	1:B:612:PHE:HA	2.01	0.43
1:A:498:TRP:HE1	1:A:526:VAL:HG21	1.84	0.43
1:C:725:ILE:O	1:C:729:LEU:HG	2.19	0.43
1:C:827:LEU:O	1:C:831:LEU:HG	2.19	0.43
1:A:716:VAL:O	1:A:717:LEU:HD23	2.18	0.43
1:C:536:LEU:HG	1:C:537:GLY:N	2.33	0.43
1:D:589:TRP:HB3	1:D:601:VAL:HG22	2.00	0.43
2:E:214:THR:HG22	2:E:215:PRO:N	2.34	0.43
2:E:324:TYR:CB	2:E:325:PRO:HD2	2.49	0.43
1:A:516:PRO:HB3	1:A:764:TYR:CE2	2.54	0.42
1:B:531:LYS:NZ	1:C:519:ILE:HG21	2.34	0.42
1:D:689:ALA:O	1:D:692:THR:OG1	2.29	0.42
1:A:563:ILE:HD11	1:B:817:VAL:N	2.34	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:581:ILE:HG21	1:A:632:SER:HB3	2.00	0.42
1:A:748:ARG:CZ	1:A:802:ASN:HB2	2.48	0.42
1:B:738:GLU:N	1:B:738:GLU:OE2	2.52	0.42
1:C:438:ILE:HD11	1:C:501:MET:CE	2.49	0.42
1:D:437:THR:HA	1:D:515:ALA:HB2	2.01	0.42
1:D:543:ARG:NH2	1:D:729:LEU:O	2.37	0.42
1:D:778:ILE:O	1:D:782:ILE:HG12	2.19	0.42
1:C:845:LYS:HA	1:C:849:ASN:OD1	2.19	0.42
2:E:279:GLY:HA2	2:E:281:ARG:NH2	2.34	0.42
1:A:433:LEU:HD13	1:A:476:PHE:HB3	2.02	0.42
1:A:613:TRP:HB3	1:D:634:ARG:NE	2.27	0.42
1:D:449:SER:O	2:E:259:VAL:HG12	2.18	0.42
1:D:724:GLY:O	1:D:728:VAL:HG23	2.20	0.42
1:A:695:LYS:HA	1:A:706:TRP:CD1	2.55	0.42
1:A:781:ALA:O	1:A:785:LEU:HD23	2.19	0.42
1:D:563:ILE:HD12	1:D:563:ILE:H	1.84	0.42
1:D:835:VAL:O	1:D:839:VAL:HG22	2.20	0.42
2:E:231:SER:HB2	2:E:233:GLU:HG3	2.01	0.42
2:E:249:GLU:HG2	2:E:250:ASN:N	2.33	0.42
1:B:586:PRO:HB3	1:C:845:LYS:HD3	2.02	0.42
1:D:648:ILE:HD13	1:D:648:ILE:HA	1.91	0.42
1:B:607:THR:HG22	1:B:610:ASN:HB2	2.01	0.42
1:B:716:VAL:HG12	1:B:717:LEU:HD22	2.00	0.42
1:D:566:TYR:CD1	1:D:569:LEU:HD21	2.53	0.42
1:B:605:ASN:HD22	1:B:629:LYS:NZ	2.18	0.42
1:B:501:MET:O	1:B:505:LEU:HB2	2.20	0.42
1:C:460:GLU:O	1:C:464:ILE:HD13	2.19	0.42
1:C:823:ILE:HG23	1:C:823:ILE:O	2.19	0.42
1:B:658:PHE:HZ	1:C:815:LEU:HB2	1.84	0.42
2:E:222:ARG:NH2	2:E:320:GLN:O	2.45	0.42
1:A:616:VAL:O	1:A:620:MET:HG2	2.19	0.41
1:B:519:ILE:HG12	1:B:763:GLY:O	2.20	0.41
1:C:431:ARG:HG2	1:C:432:SER:N	2.35	0.41
1:C:642:PHE:HB2	1:D:620:MET:HE1	2.01	0.41
1:C:716:VAL:HG12	1:C:727:ARG:HH21	1.84	0.41
1:C:846:SER:O	1:C:850:ALA:HB3	2.20	0.41
1:D:620:MET:O	1:D:622:GLN:N	2.47	0.41
1:D:660:THR:HG22	1:D:661:VAL:HG23	2.02	0.41
1:D:848:LYS:HD2	1:D:848:LYS:HA	1.93	0.41
1:A:533:PHE:CE1	1:A:534:MET:HE3	2.55	0.41
1:B:556:LEU:HD23	1:B:556:LEU:H	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:557:ASN:N	1:B:558:PRO:HD2	2.35	0.41
1:C:866:ARG:HA	1:C:866:ARG:HD3	1.84	0.41
1:D:721:ASN:O	1:D:725:ILE:HG23	2.20	0.41
1:D:735:PHE:HE2	1:D:737:MET:SD	2.43	0.41
1:C:543:ARG:NE	1:C:751:ASN:HB3	2.35	0.41
1:A:722:GLU:HA	1:A:725:ILE:HD12	2.03	0.41
1:C:436:THR:HA	1:C:481:ARG:O	2.20	0.41
1:C:770:MET:HB3	1:C:770:MET:HE3	1.78	0.41
1:D:702:TYR:HA	1:D:705:MET:HB2	2.01	0.41
1:A:451:LYS:HE3	1:A:451:LYS:HB3	1.91	0.41
1:A:748:ARG:NE	1:A:802:ASN:HB2	2.36	0.41
1:B:439:LEU:HD12	1:B:444:VAL:HG23	2.03	0.41
1:B:666:SER:HA	1:B:667:PRO:HD3	1.97	0.41
1:D:465:ASP:OD1	1:D:466:LEU:N	2.53	0.41
1:D:544:LYS:HB3	1:D:753:THR:OG1	2.21	0.41
2:E:222:ARG:NH2	2:E:320:GLN:HB3	2.35	0.41
1:A:639:ILE:HD13	1:A:639:ILE:HA	1.87	0.41
1:A:685:VAL:HA	1:A:718:VAL:O	2.20	0.41
1:B:825:ILE:H	1:B:825:ILE:HD12	1.85	0.41
1:C:560:SER:C	1:C:562:ASP:H	2.29	0.41
1:D:607:THR:H	1:D:610:ASN:HB2	1.85	0.41
1:A:498:TRP:NE1	1:A:526:VAL:HG11	2.36	0.41
1:A:775:ARG:HA	1:A:778:ILE:HG22	2.02	0.41
1:C:520:THR:OG1	1:C:523:ARG:HG3	2.21	0.41
1:D:504:GLU:HB3	1:D:510:ALA:HB3	2.02	0.41
2:E:350:ILE:O	2:E:354:THR:HG23	2.21	0.41
1:A:431:ARG:HG2	1:A:432:SER:N	2.35	0.41
1:A:531:LYS:HG2	1:A:779:THR:HG23	2.02	0.41
1:A:628:PRO:C	1:A:634:ARG:HE	2.24	0.41
1:A:668:ILE:HG22	1:A:673:ASP:HB3	2.03	0.41
1:B:443:TYR:CD2	1:B:516:PRO:HG3	2.56	0.41
1:B:451:LYS:HB2	1:B:452:PRO:HD3	2.02	0.41
1:A:536:LEU:HG	1:A:762:LYS:O	2.21	0.41
1:B:470:LEU:HD21	1:B:778:ILE:CD1	2.51	0.41
1:B:785:LEU:HD22	1:B:790:LYS:HD2	2.03	0.41
1:D:485:ASP:OD1	1:D:485:ASP:N	2.54	0.41
1:D:540:ILE:HB	1:D:755:ILE:O	2.20	0.41
1:D:694:PHE:HB3	1:D:706:TRP:HD1	1.84	0.41
2:E:218:LYS:HD2	2:E:294:GLU:HB2	2.02	0.41
1:B:514:VAL:HG12	1:B:766:VAL:HG12	2.03	0.41
2:E:251:LEU:HD12	2:E:251:LEU:O	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:515:ALA:O	1:A:517:LEU:N	2.47	0.40
1:A:645:LEU:CD1	1:B:620:MET:HG3	2.50	0.40
1:B:530:SER:OG	1:B:766:VAL:HG22	2.21	0.40
1:B:852:LEU:O	1:B:854:LYS:NZ	2.37	0.40
1:D:460:GLU:HA	1:D:464:ILE:HD11	2.03	0.40
1:A:544:LYS:HG2	1:A:751:ASN:O	2.20	0.40
1:A:816:GLY:HA3	1:D:559:LEU:HA	2.02	0.40
1:B:443:TYR:CE2	1:B:516:PRO:HG3	2.56	0.40
1:C:523:ARG:O	1:C:527:ILE:HB	2.20	0.40
1:C:628:PRO:HB2	1:C:634:ARG:HG2	2.02	0.40
1:A:728:VAL:HA	1:A:733:TYR:HB3	2.02	0.40
1:B:519:ILE:HG22	1:B:519:ILE:O	2.22	0.40
1:B:589:TRP:CZ2	1:C:864:GLU:HG3	2.57	0.40
1:D:719:LYS:HA	1:D:719:LYS:HD2	1.87	0.40
2:E:189:ARG:HD3	2:E:190:SER:H	1.86	0.40
1:A:446:PHE:HA	1:A:458:ARG:O	2.21	0.40
1:B:586:PRO:HB3	1:C:845:LYS:NZ	2.37	0.40
1:B:796:GLU:O	1:B:800:ARG:HB2	2.21	0.40
1:B:854:LYS:HD2	1:B:857:PHE:CD2	2.55	0.40
1:C:779:THR:O	1:C:783:LEU:HD23	2.22	0.40
1:B:540:ILE:HB	1:B:755:ILE:HG13	2.04	0.40
1:C:483:VAL:HG12	1:C:485:ASP:H	1.87	0.40
2:E:220:TYR:O	2:E:289:PHE:HA	2.21	0.40
2:E:229:GLU:OE1	2:E:229:GLU:N	2.48	0.40
2:E:326:TRP:CE3	2:E:326:TRP:HA	2.56	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	435/908 (48%)	407 (94%)	28 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	B	431/908 (48%)	389 (90%)	42 (10%)	0	100	100
1	C	435/908 (48%)	410 (94%)	25 (6%)	0	100	100
1	D	418/908 (46%)	371 (89%)	47 (11%)	0	100	100
2	E	190/525 (36%)	164 (86%)	25 (13%)	1 (0%)	25	60
All	All	1909/4157 (46%)	1741 (91%)	167 (9%)	1 (0%)	50	80

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	E	326	TRP

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	376/794 (47%)	376 (100%)	0	100	100
1	B	372/794 (47%)	372 (100%)	0	100	100
1	C	378/794 (48%)	378 (100%)	0	100	100
1	D	361/794 (46%)	361 (100%)	0	100	100
2	E	169/465 (36%)	166 (98%)	3 (2%)	54	71
All	All	1656/3641 (46%)	1653 (100%)	3 (0%)	91	94

All (3) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	E	297	CYS
2	E	298	THR
2	E	324	TYR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (12) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	622	GLN
1	A	677	GLN
1	A	754	GLN
1	A	851	GLN
1	B	593	HIS
1	B	605	ASN
1	B	792	HIS
1	C	596	ASN
1	D	497	GLN
2	E	203	GLN
2	E	227	GLN
2	E	320	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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

5.5 Carbohydrates ⓘ

6 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	F	1	1,3	14,14,15	0.37	0	17,19,21	0.73	1 (5%)
3	NAG	F	2	3	14,14,15	0.20	0	17,19,21	0.49	0
3	BMA	F	3	3	11,11,12	0.66	0	15,15,17	0.77	0
3	NAG	G	1	1,3	14,14,15	0.57	0	17,19,21	0.49	0
3	NAG	G	2	3	14,14,15	0.27	0	17,19,21	0.56	0
3	BMA	G	3	3	11,11,12	0.81	0	15,15,17	1.12	2 (13%)

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	F	1	1,3	-	3/6/23/26	0/1/1/1
3	NAG	F	2	3	-	0/6/23/26	0/1/1/1
3	BMA	F	3	3	-	2/2/19/22	0/1/1/1
3	NAG	G	1	1,3	-	3/6/23/26	0/1/1/1
3	NAG	G	2	3	-	1/6/23/26	0/1/1/1
3	BMA	G	3	3	-	1/2/19/22	0/1/1/1

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	G	3	BMA	C1-C2-C3	-2.38	106.74	109.67
3	G	3	BMA	O5-C1-C2	-2.16	107.44	110.77
3	F	1	NAG	C1-O5-C5	2.16	115.12	112.19

There are no chirality outliers.

All (10) torsion outliers are listed below:

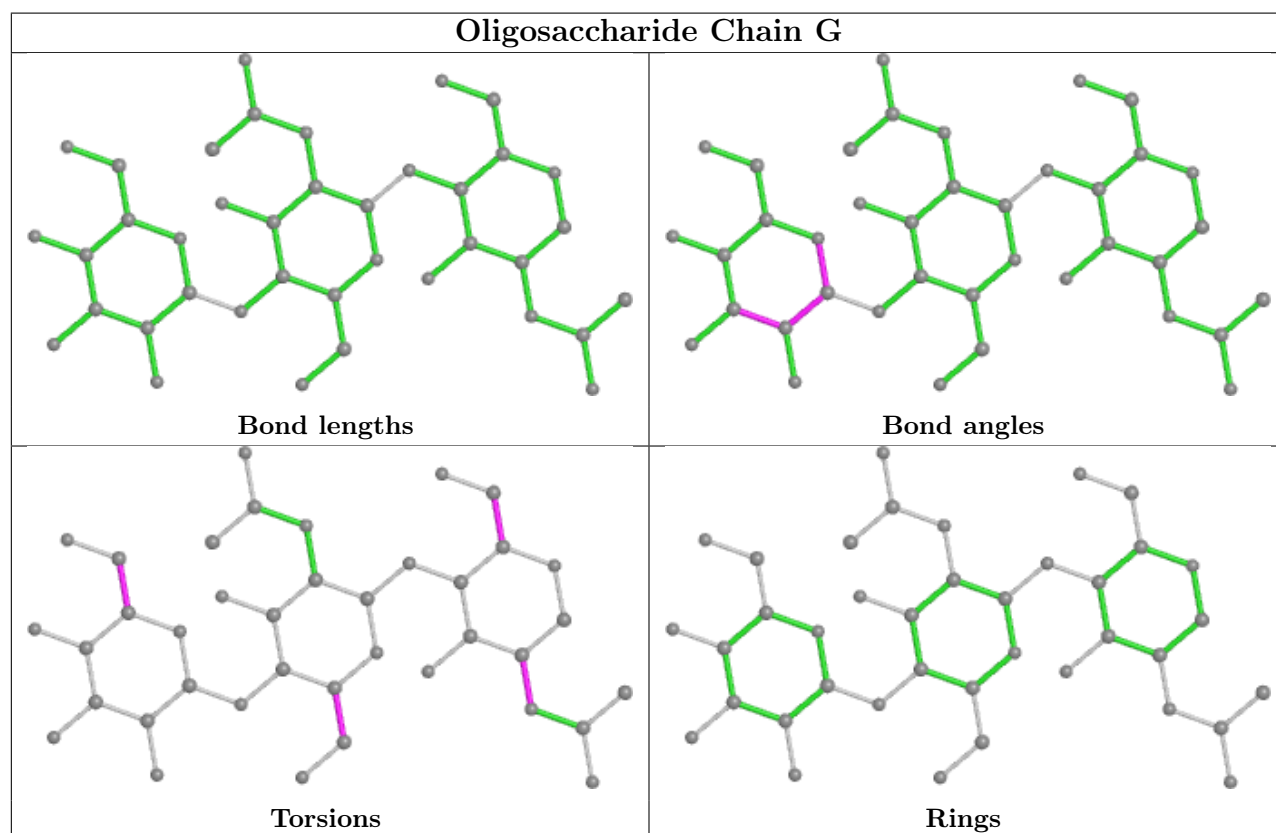
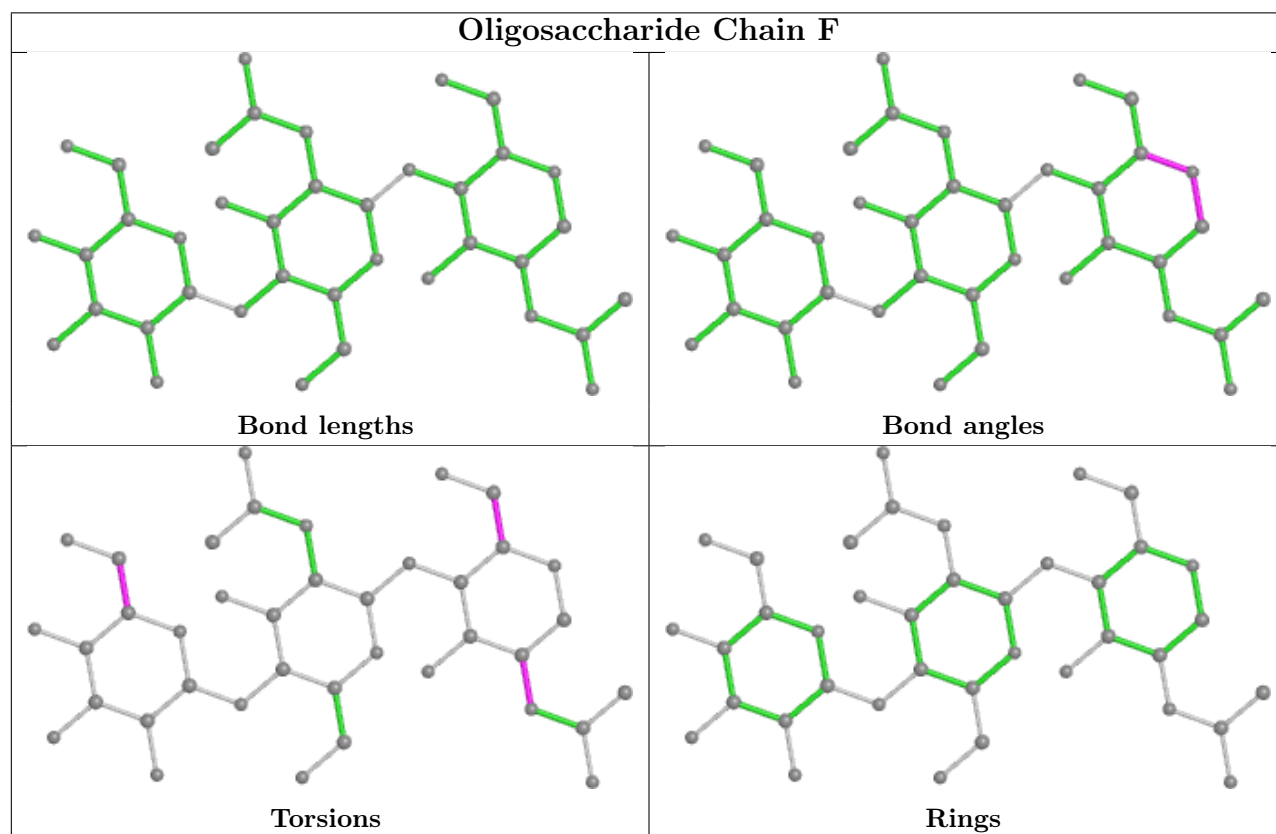
Mol	Chain	Res	Type	Atoms
3	G	1	NAG	C4-C5-C6-O6
3	F	3	BMA	O5-C5-C6-O6
3	G	1	NAG	O5-C5-C6-O6
3	F	3	BMA	C4-C5-C6-O6
3	G	3	BMA	O5-C5-C6-O6
3	F	1	NAG	C4-C5-C6-O6
3	G	2	NAG	O5-C5-C6-O6
3	F	1	NAG	O5-C5-C6-O6
3	F	1	NAG	C3-C2-N2-C7
3	G	1	NAG	C1-C2-N2-C7

There are no ring outliers.

2 monomers are involved in 2 short contacts:

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

Of 8 ligands modelled in this entry, 1 is monoatomic - leaving 7 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	A	1002	1	14,14,15	0.50	0	17,19,21	0.70	1 (5%)
4	NAG	C	1001	1	14,14,15	0.26	0	17,19,21	0.36	0
6	PGT	D	1002	-	15,15,50	0.10	0	14,14,56	0.12	0
4	NAG	D	1001	1	14,14,15	0.19	0	17,19,21	0.46	0
4	NAG	A	1001	1	14,14,15	0.50	0	17,19,21	0.42	0
4	NAG	C	1002	1	14,14,15	0.37	0	17,19,21	0.34	0
4	NAG	B	1102	1	14,14,15	0.31	0	17,19,21	0.54	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	A	1002	1	-	3/6/23/26	0/1/1/1
4	NAG	C	1001	1	-	2/6/23/26	0/1/1/1
6	PGT	D	1002	-	-	1/13/13/55	-
4	NAG	D	1001	1	-	2/6/23/26	0/1/1/1
4	NAG	A	1001	1	-	4/6/23/26	0/1/1/1
4	NAG	C	1002	1	-	2/6/23/26	0/1/1/1
4	NAG	B	1102	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(°)
4	A	1002	NAG	C1-O5-C5	2.46	115.53	112.19

There are no chirality outliers.

All (16) torsion outliers are listed below:

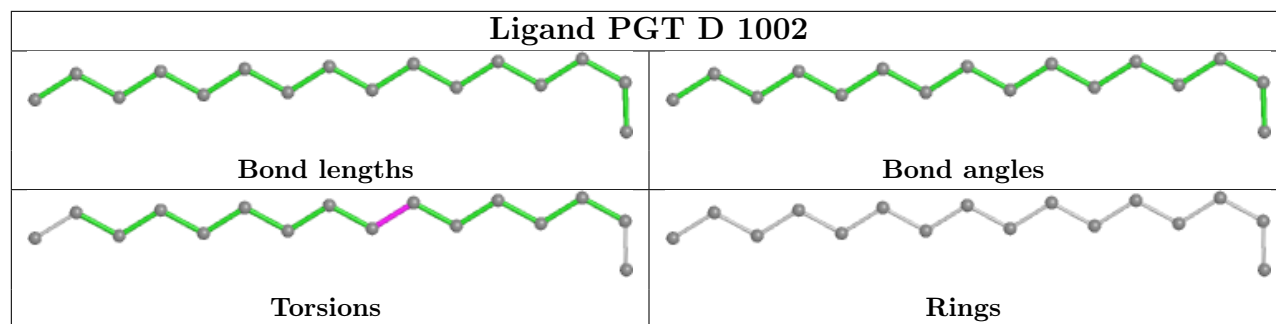
Mol	Chain	Res	Type	Atoms
4	B	1102	NAG	C4-C5-C6-O6
4	D	1001	NAG	C4-C5-C6-O6
4	A	1002	NAG	O5-C5-C6-O6
4	A	1001	NAG	O5-C5-C6-O6
4	B	1102	NAG	O5-C5-C6-O6
4	A	1002	NAG	C4-C5-C6-O6
4	C	1002	NAG	O5-C5-C6-O6
4	D	1001	NAG	O5-C5-C6-O6
4	C	1001	NAG	O5-C5-C6-O6
4	C	1002	NAG	C4-C5-C6-O6
4	A	1001	NAG	C8-C7-N2-C2
4	A	1001	NAG	O7-C7-N2-C2
4	A	1001	NAG	C4-C5-C6-O6
4	C	1001	NAG	C4-C5-C6-O6
4	A	1002	NAG	C1-C2-N2-C7
6	D	1002	PGT	C40-C41-C42-C43

There are no ring outliers.

2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	1002	NAG	1	0
4	C	1001	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 all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



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.

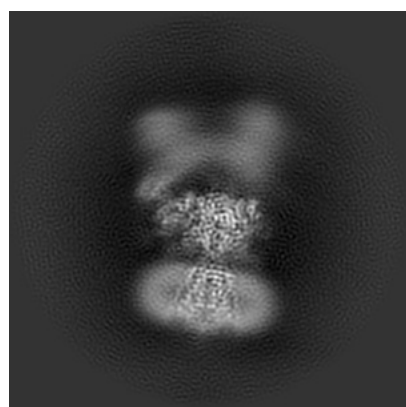
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-31464. These allow visual inspection of the internal detail of the map and identification of artifacts.

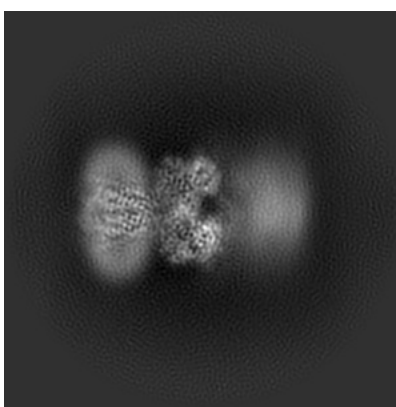
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

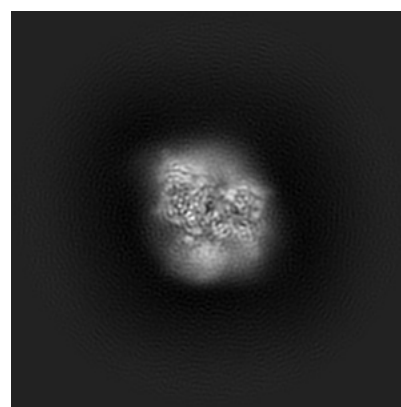
6.1.1 Primary map



X



Y

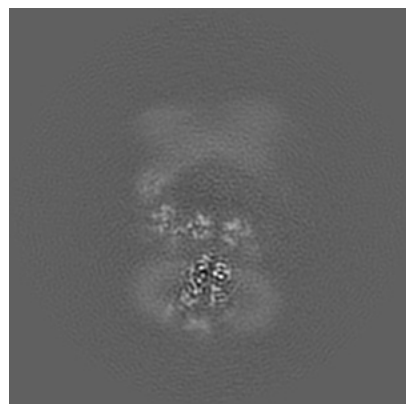


Z

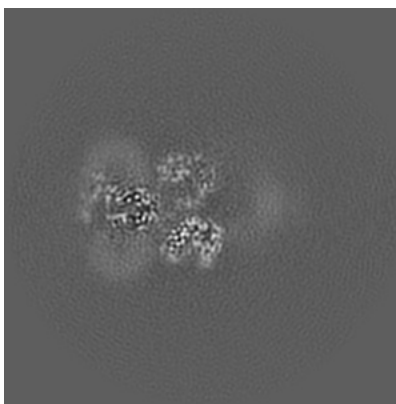
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

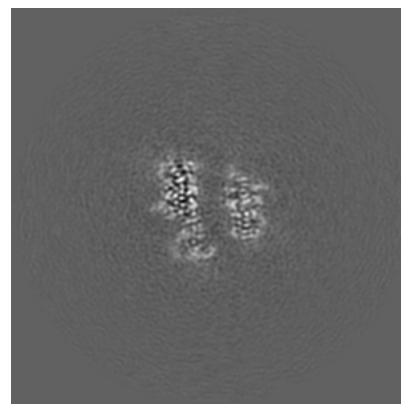
6.2.1 Primary map



X Index: 128



Y Index: 128

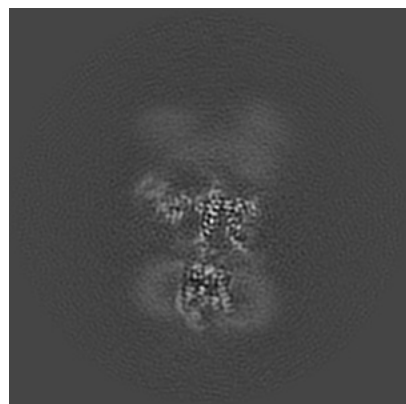


Z Index: 128

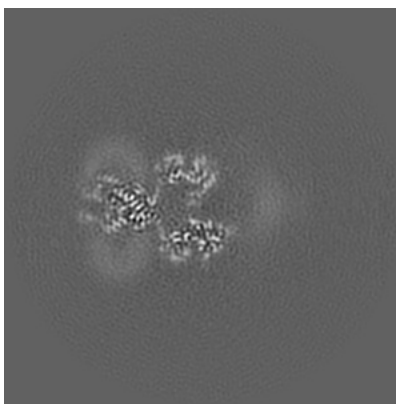
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

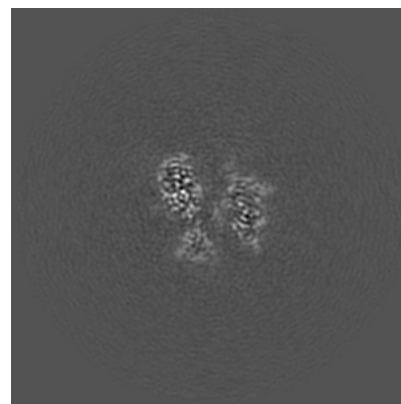
6.3.1 Primary map



X Index: 115



Y Index: 131

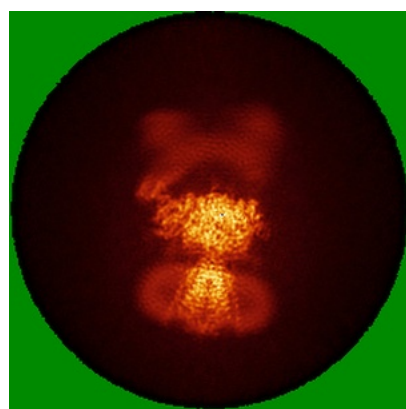


Z Index: 125

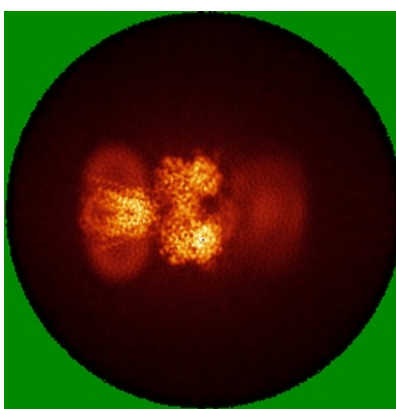
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

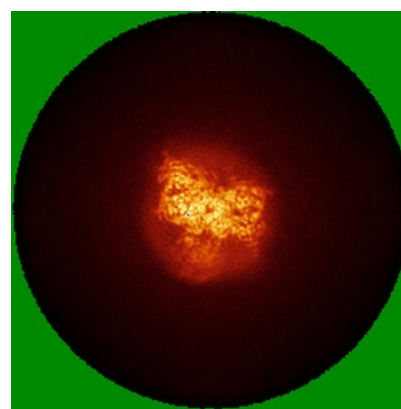
6.4.1 Primary map



X



Y

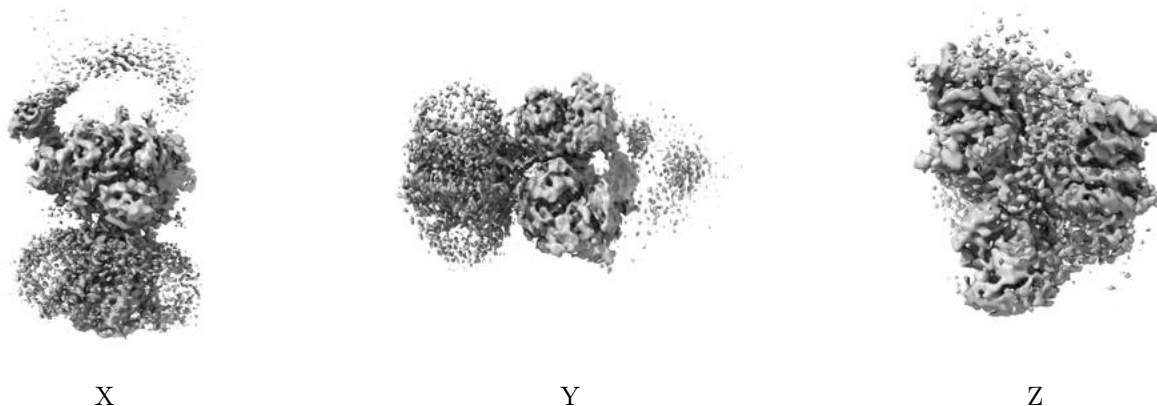


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.514. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

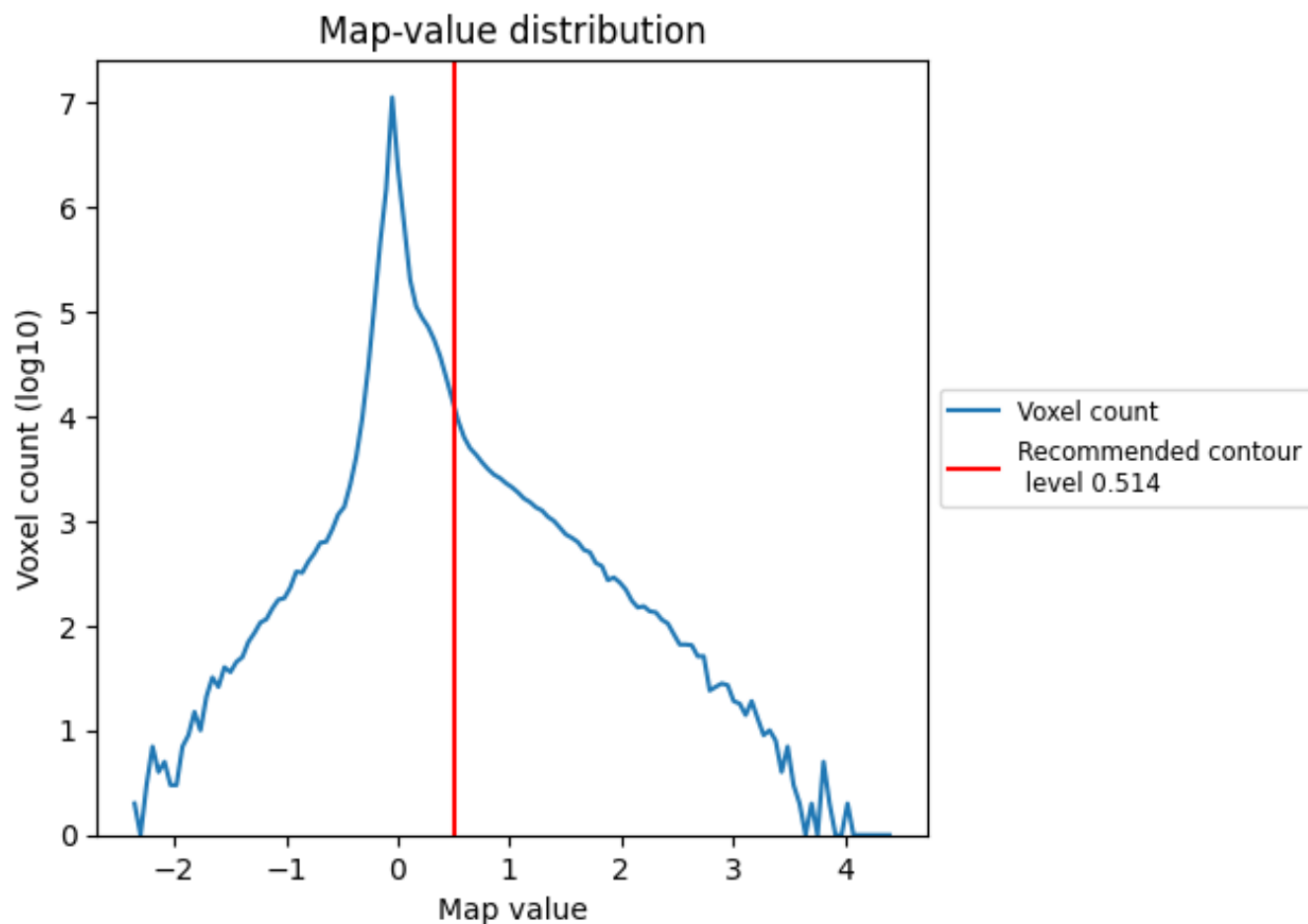
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

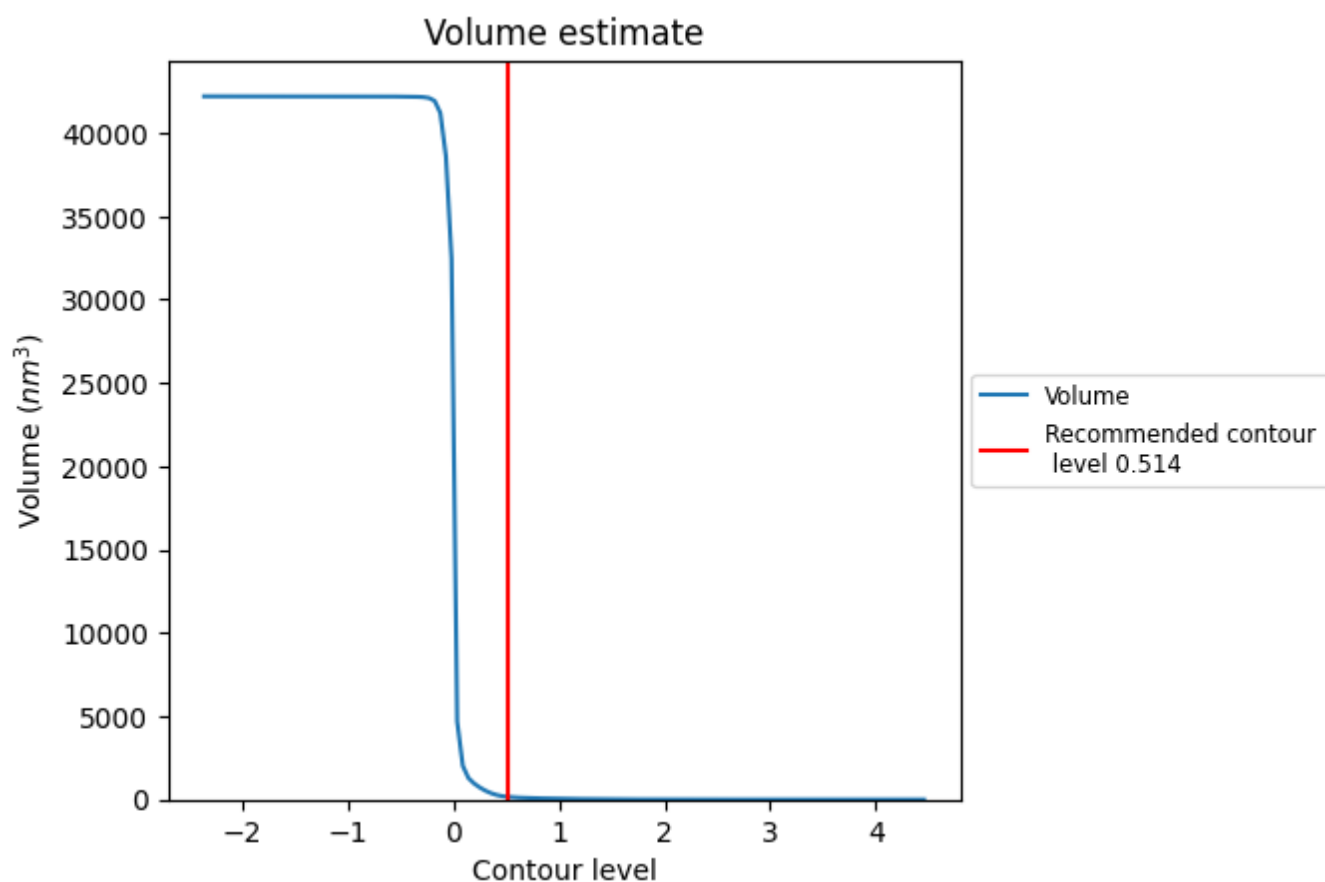
This section contains the results of statistical analysis of the map.

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.

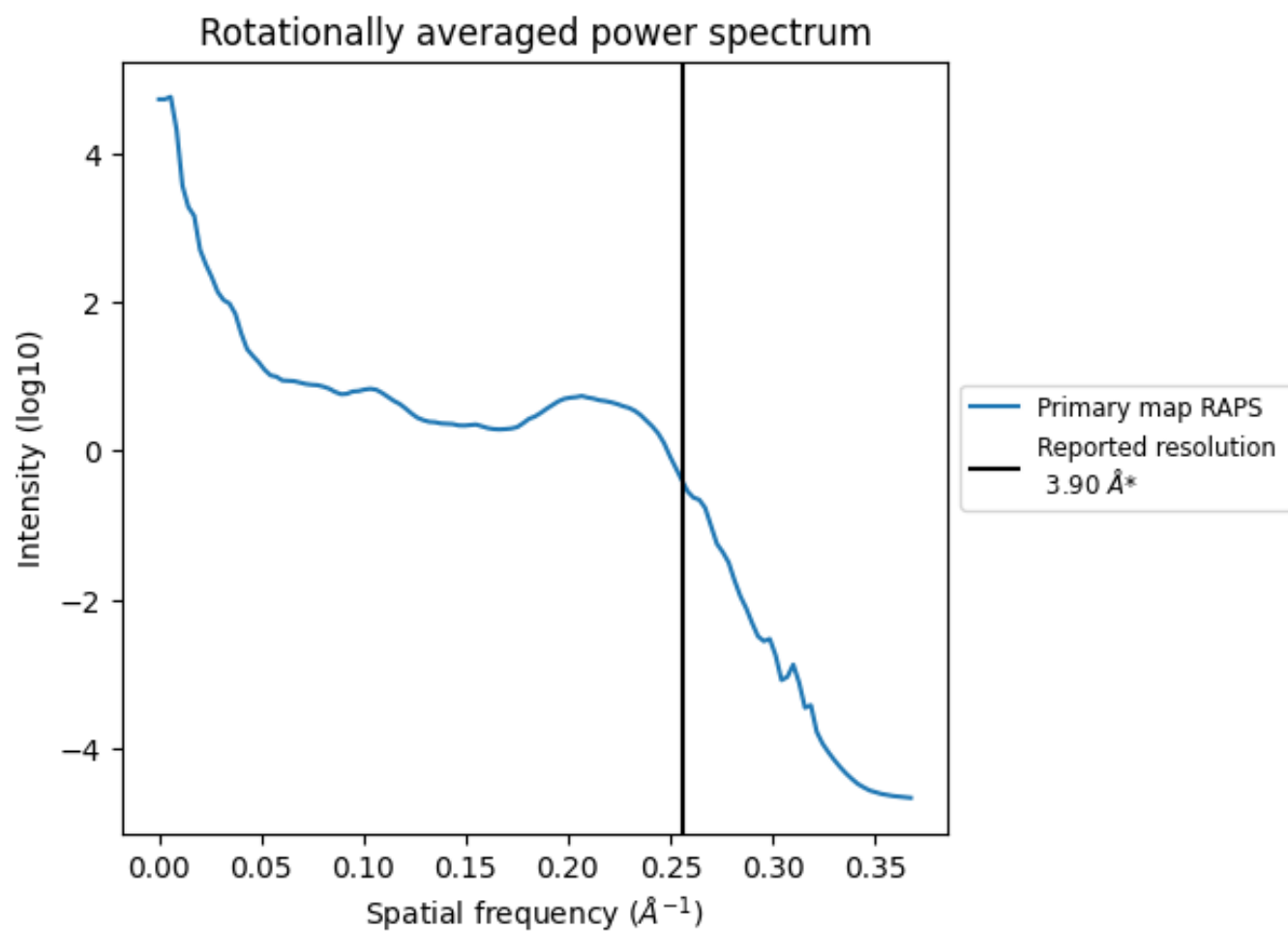
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 163 nm³; this corresponds to an approximate mass of 147 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 ⓘ

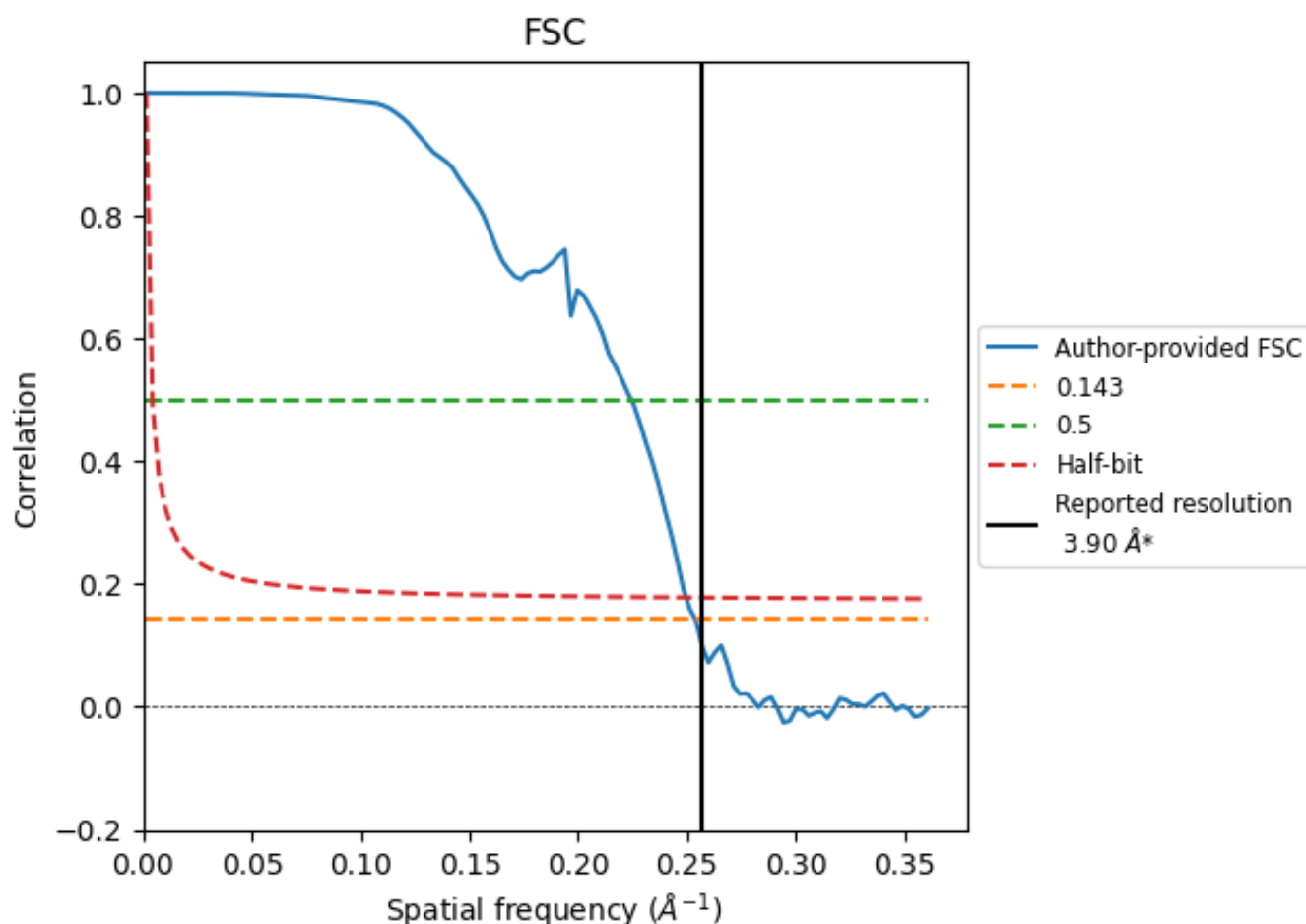


*Reported resolution corresponds to spatial frequency of 0.256 Å⁻¹

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 0.256 Å⁻¹

8.2 Resolution estimates [i](#)

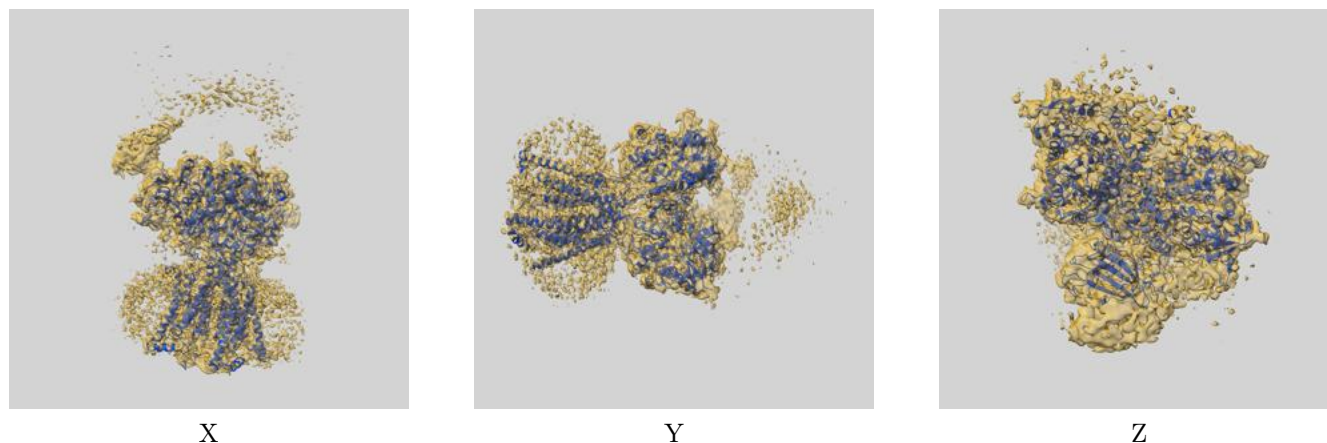
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.90	-	-
Author-provided FSC curve	3.94	4.46	4.01
Unmasked-calculated*	-	-	-

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

9 Map-model fit [i](#)

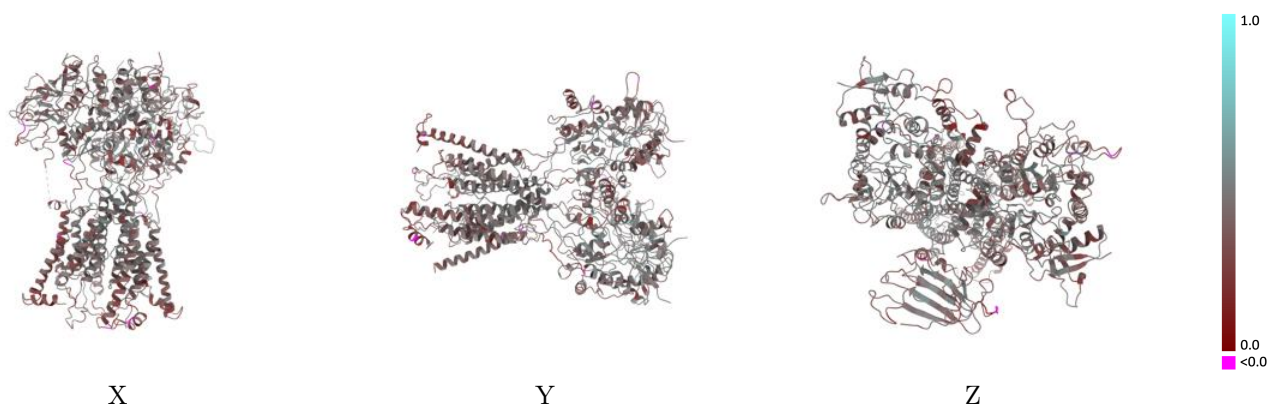
This section contains information regarding the fit between EMDB map EMD-31464 and PDB model 7F5B. Per-residue inclusion information can be found in section [3](#) on page [6](#).

9.1 Map-model overlay [i](#)



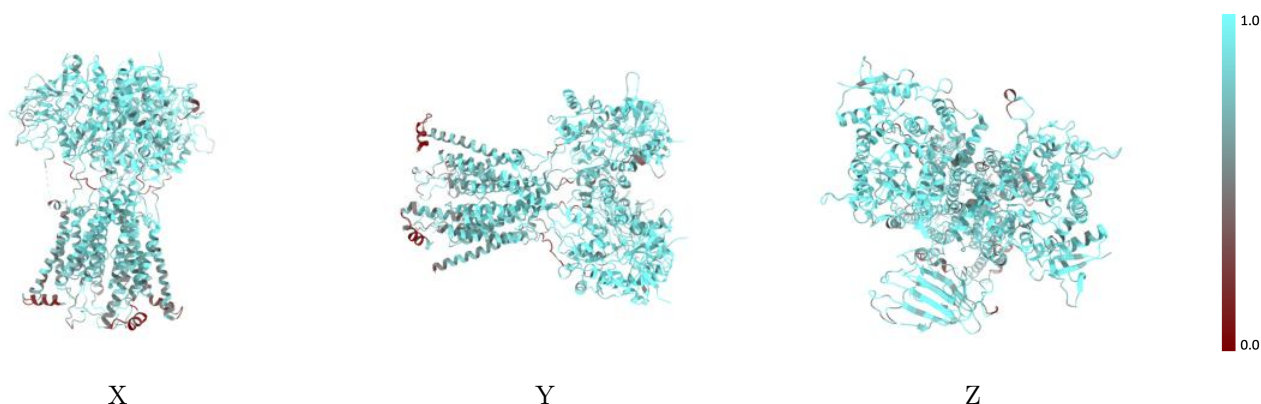
The images above show the 3D surface view of the map at the recommended contour level 0.514 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



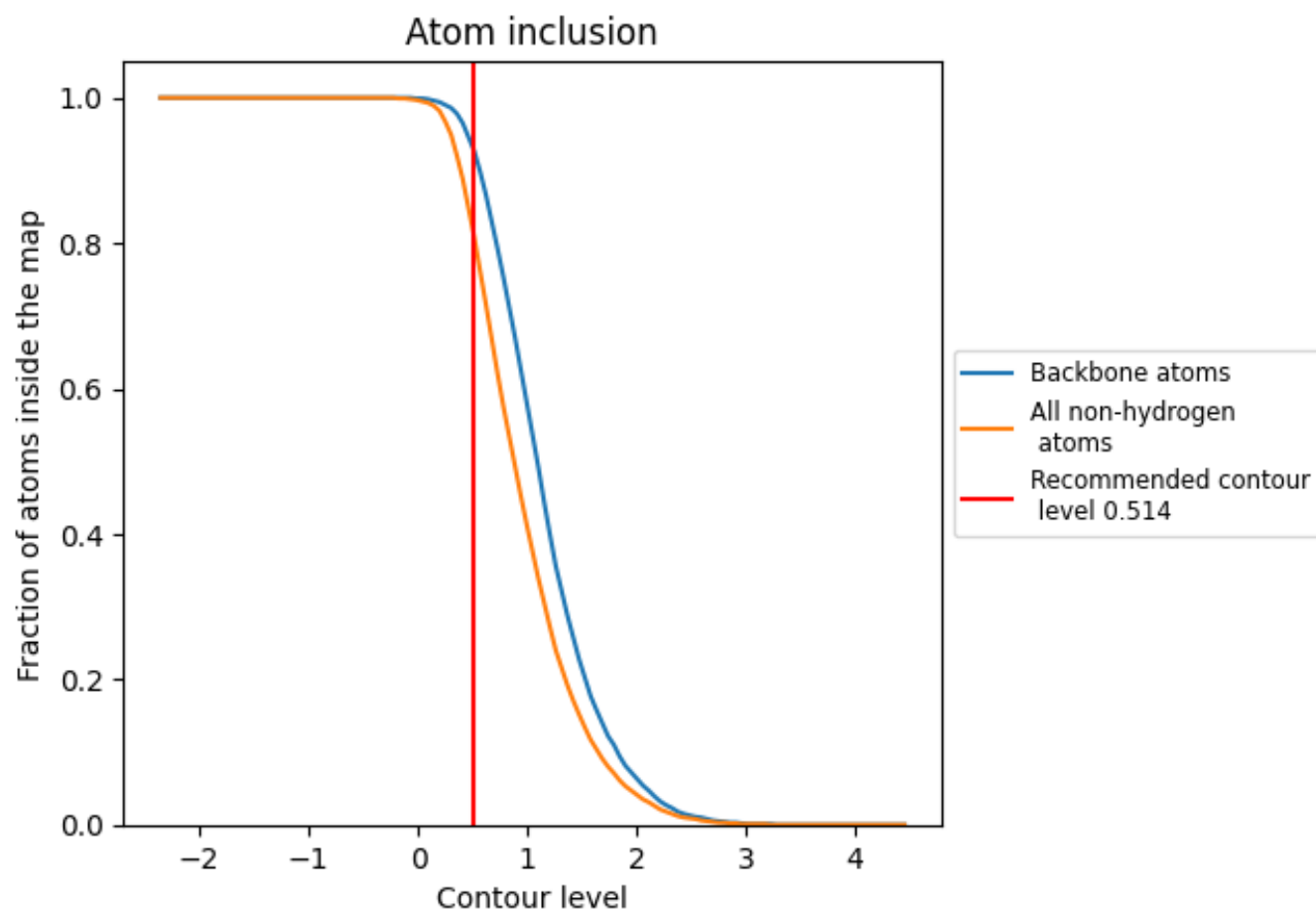
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.514).

9.4 Atom inclusion [i](#)



At the recommended contour level, 93% of all backbone atoms, 81% 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 (0.514) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8100	0.4050
A	0.8140	0.3970
B	0.8010	0.3990
C	0.8020	0.4050
D	0.8440	0.4410
E	0.7660	0.3550
F	0.7950	0.4630
G	0.6920	0.4140

1.0

0.0

<0.0