WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB EM Validation Report ⓘ

Sep 5, 2024 – 12:21 PM JST

PDB ID	:	8JJ1
EMDB ID	:	EMD-36337
Title	:	Cryo-EM structure of GluN1-2A NMDAR in complex with human Fab2G7 in two fab conformation
Authors	:	Wang, H.; Zhu, S.
Deposited on	:	2023-05-29
Resolution	:	3.77 Å(reported)

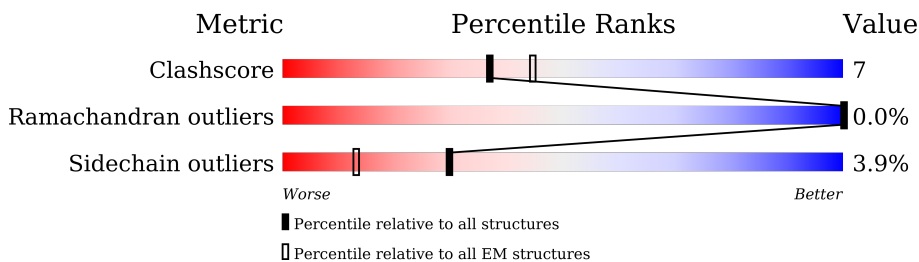The following versions of software and data (see references ⓘ) were used in the production of this report:

EMDB validation analysis	:	0.0.1.dev112
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
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)	:	2.38.2

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 3.77 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	Percentile Ranks	Value
Clashscore		7
Ramachandran outliers		0.0%
Sidechain outliers		3.9%

Worse　　　　　　　　　　　　　　　　　　*Better*

▉ Percentile relative to all structures
❘ Percentile relative to all EM structures

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 <=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	E	253	40% · 9% 52%
1	H	253	5% · 41% 8% 52%
2	A	841	6% · 72% 17% · 9%
2	C	841	5% · 70% 19% · 10%
3	B	847	5% · 69% 21% · 8%
3	D	847	73% 18% · 8%
4	F	234	5% · 44% · 55%
4	G	234	9% · 43% · 55%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
5	I	2	100%

2 Entry composition ⓘ

There are 6 unique types of molecules in this entry. The entry contains 28026 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 Fab 2G7 Heavy Chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	H	122	Total 930	C 584	N 159	O 184	S 3	0	0
1	E	122	Total 930	C 584	N 159	O 184	S 3	0	0

- Molecule 2 is a protein called Glutamate receptor ionotropic, NMDA 2A.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	A	763	Total 6033	C 3898	N 982	O 1115	S 38	0	0
2	C	760	Total 6004	C 3879	N 977	O 1110	S 38	0	0

- Molecule 3 is a protein called Glutamate receptor ionotropic, NMDA 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	B	778	Total 6153	C 3923	N 1065	O 1131	S 34	0	0
3	D	780	Total 6158	C 3931	N 1058	O 1135	S 34	0	0

- Molecule 4 is a protein called Fab 2G7 Light Chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	F	106	Total 818	C 515	N 138	O 161	S 4	0	0
4	G	106	Total 818	C 515	N 138	O 161	S 4	0	0

- Molecule 5 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-a cetamido-2-deoxy-beta-D-glucopyranose.

Mol	Chain	Residues	Atoms				AltConf	Trace
5	I	2	Total 28	C 16	N 2	O 10	0	0

- Molecule 6 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$) (labeled as "Ligand of Interest" by depositor).
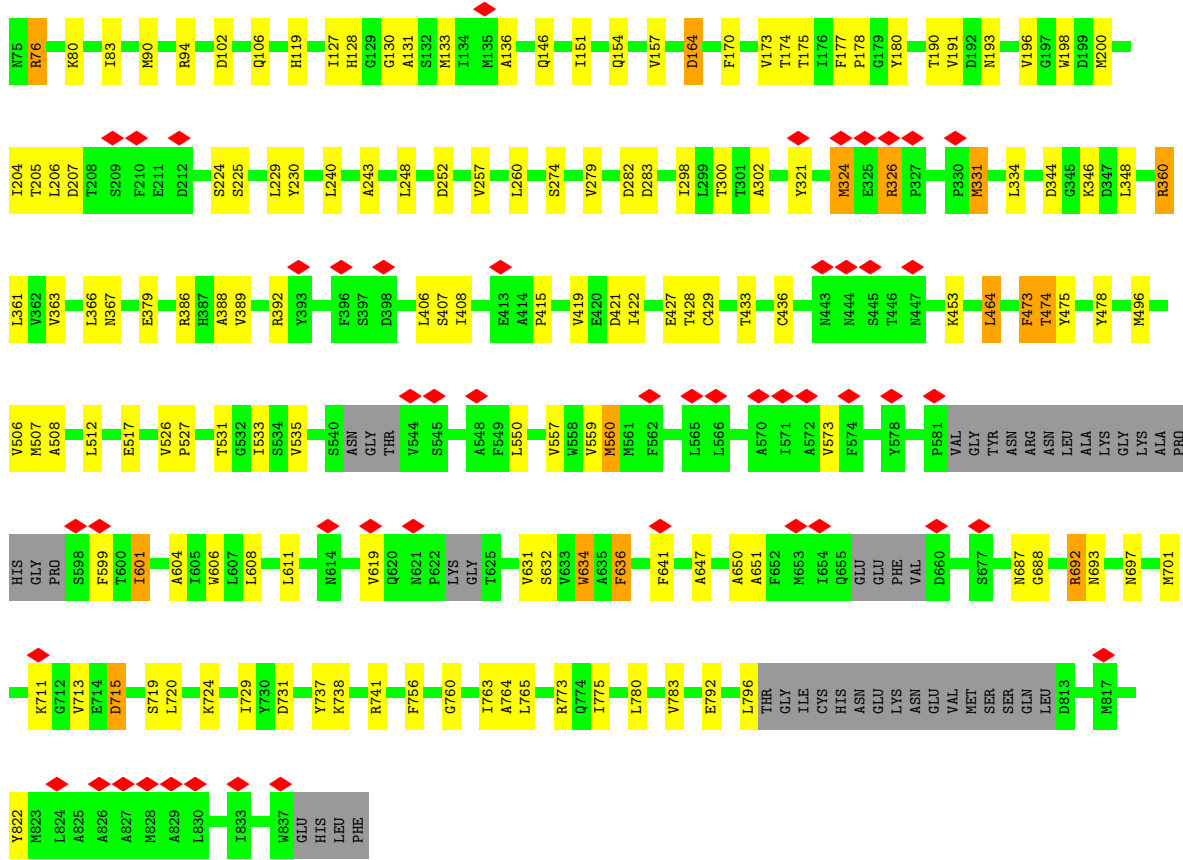

Mol	Chain	Residues	Atoms				AltConf
6	A	1	Total 14	C 8	N 1	O 5	0
6	B	1	Total 14	C 8	N 1	O 5	0
6	B	1	Total 14	C 8	N 1	O 5	0
6	B	1	Total 14	C 8	N 1	O 5	0
6	B	1	Total 14	C 8	N 1	O 5	0
6	C	1	Total 14	C 8	N 1	O 5	0
6	D	1	Total 14	C 8	N 1	O 5	0
6	D	1	Total 14	C 8	N 1	O 5	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms				AltConf
6	D	1	Total	C	N	O	0
			14	8	1	5	
6	D	1	Total	C	N	O	0
			14	8	1	5	
6	D	1	Total	C	N	O	0
			14	8	1	5	

3　Residue-property plots ⓘ

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and 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.
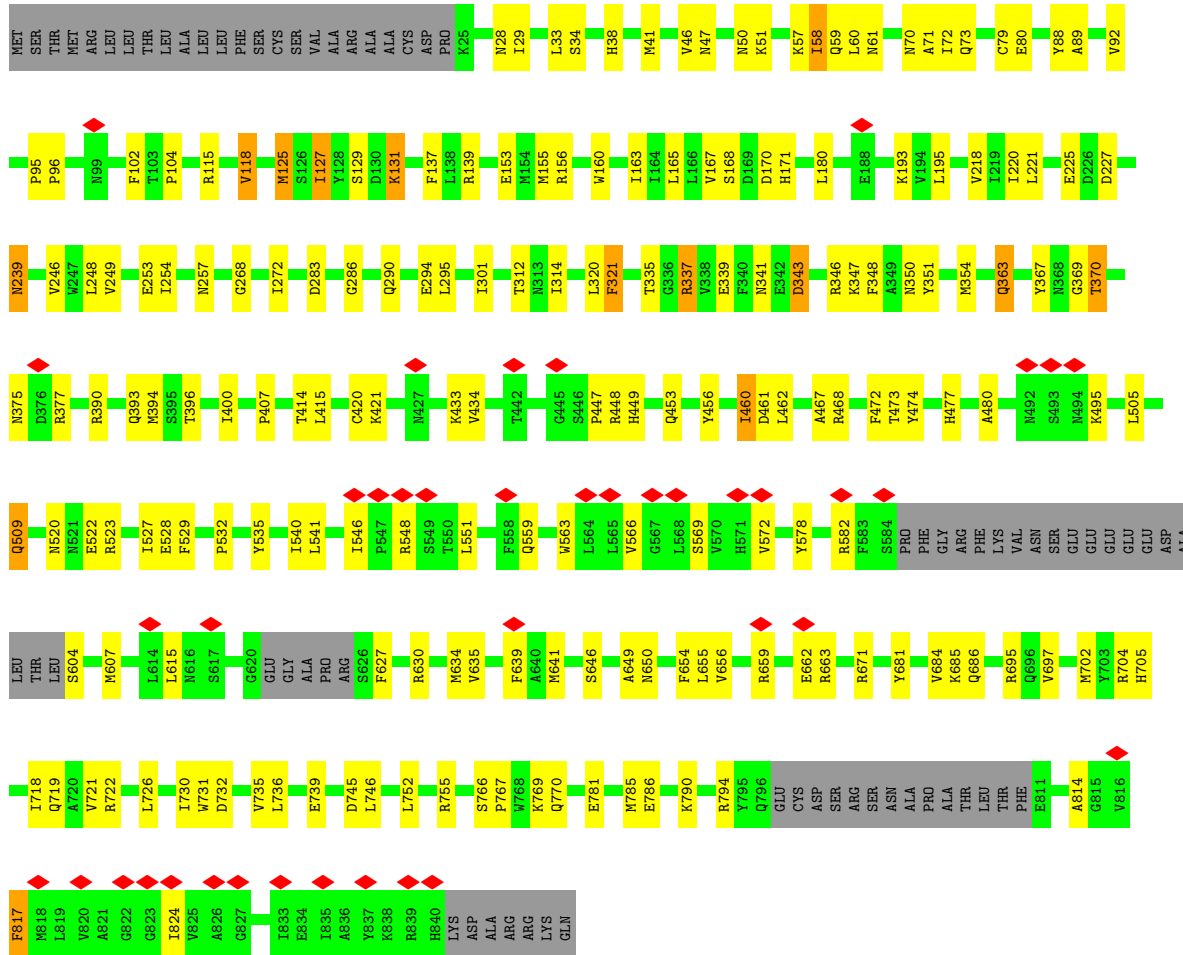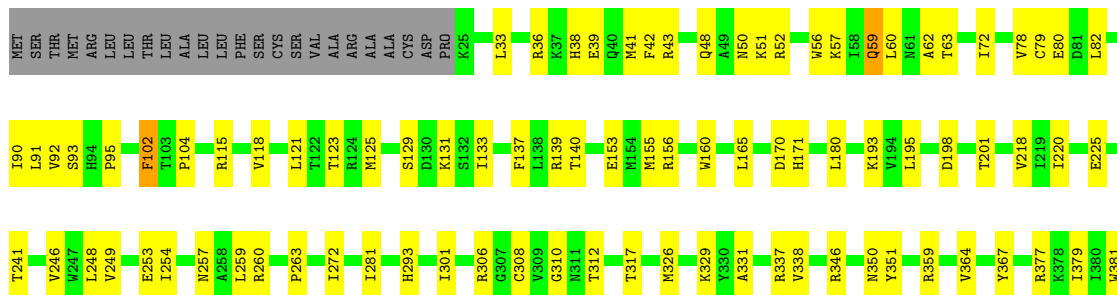
• Molecule 1: Fab 2G7 Heavy Chain
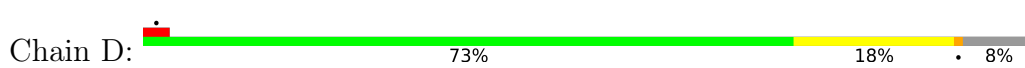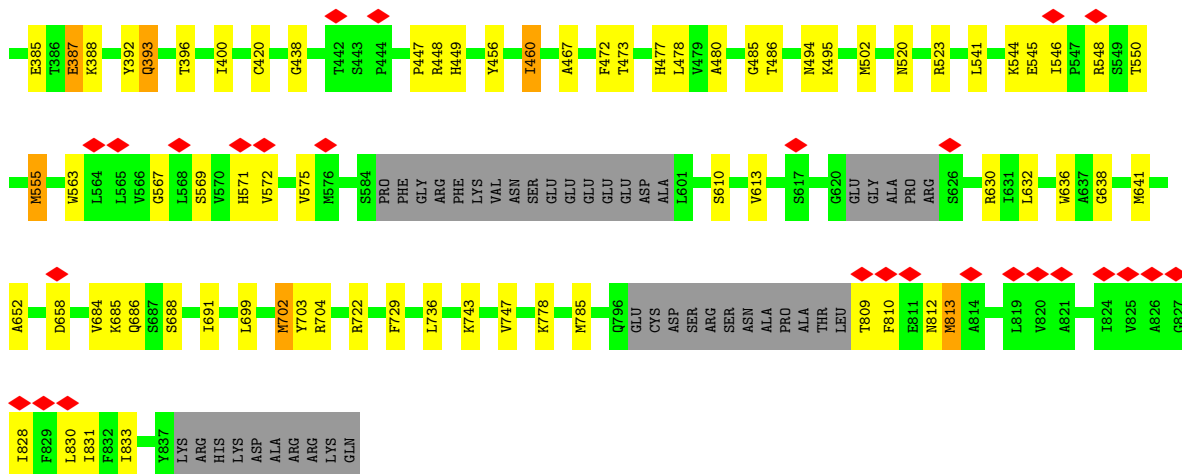

• Molecule 1: Fab 2G7 Heavy Chain

• Molecule 2: Glutamate receptor ionotropic, NMDA 2A
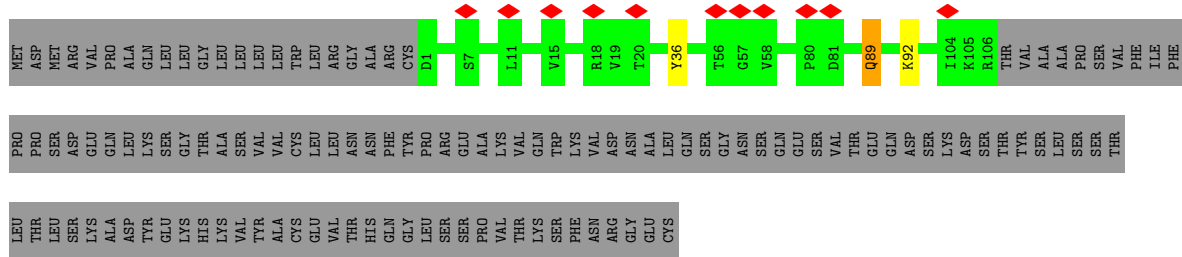
• Molecule 2: Glutamate receptor ionotropic, NMDA 2A

Chain C:

S719 K724 I729 Y730 D731 V734 G744 F756 A764 L765 Q766 D776 L777 L780 L796 T797 G798 ILE CYS HIS ASN GLU LYS ASN GLU VAL MET S809 S810 Q811 N816 M817 A818 G819 V820 F821 Y822 M823 L824 A825 A826 A827 M828 A829 W837 GLU HIS LEU PHE
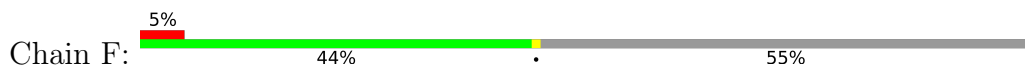
• Molecule 3: Glutamate receptor ionotropic, NMDA 1

Chain B:

5%

69% 21% • 8%

MET SER THR MET ARG LEU LEU THR LEU ALA LEU LEU PHE SER CYS SER VAL ALA ARG ALA ALA CYS ASP PRO K25 N28 I29 L33 S34 H38 M41 V46 N47 N50 K51 K57 I58 Q59 L60 N61 N70 A71 I72 Q73 C79 E80 Y88 A89 V92

P95 P96 N99 F102 T103 P104 R115 V118 M125 S126 I127 Y128 S129 D130 K131 F137 L138 R139 E153 M154 M155 R156 W160 I163 I164 L165 L166 V167 S168 D169 D170 H171 L180 E188 K193 V194 L195 V218 I219 I220 L221 E225 D226 D227

N239 V246 W247 L248 V249 E253 I254 N257 G268 I272 D283 G286 Q290 E294 L295 I301 T312 N313 I314 L320 F321 T335 G336 R337 V338 E339 F340 N341 E342 D343 R346 K347 F348 A349 N350 Y351 M354 Q363 Y367 N368 G369 T370

N375 D376 R377 R390 Q393 M394 S395 T396 I400 P407 T414 L415 C420 K421 N427 K433 V434 T442 G445 S446 P447 R448 H449 Q453 Y456 I460 D461 L462 A467 R468 F472 T473 Y474 H477 A480 N492 S493 N494 K495 L505

Q509 N520 N521 E522 R523 I527 E528 F529 P532 Y535 I540 L541 I546 P547 R548 S549 T550 L551 F558 Q559 W563 L564 L565 V566 G567 L568 S569 V570 H571 V572 Y578 R582 F583 S584 PRO PHE GLY ARG PHE LYS VAL ASN SER GLU GLU GLU GLU ASP ALA

LEU THR LEU S604 M607 L614 L615 N616 S617 G620 GLU GLY ALA PRO ARG S626 F627 R630 M634 V635 F639 A640 M641 S646 A649 N650 F654 L655 V656 R659 E662 R663 R671 Y681 V684 K685 Q686 R695 Q696 V697 M702 Y703 R704 H705

I718 Q719 A720 V721 R722 L726 I730 W731 D732 V735 L736 E739 D745 L746 L752 R755 S766 P767 W768 K769 Q770 E781 M785 E786 K790 R794 Y795 Q796 GLU CYS ASP SER ARG SER ASN ALA PRO ALA THR LEU THR PHE E811 A814 G815 V816

F817 M818 L819 V820 A821 G822 G823 I824 V825 A826 G827 I833 E834 I835 A836 Y837 K838 R839 H840 LYS ASP ALA ARG ARG LYS GLN

• Molecule 3: Glutamate receptor ionotropic, NMDA 1

Chain D:

73% 18% • 8%

MET SER THR MET ARG LEU LEU THR LEU ALA LEU LEU PHE SER CYS SER VAL ALA ARG ALA ALA CYS ASP PRO K25 L33 R36 K37 H38 E39 Q40 M41 F42 R43 Q48 A49 N50 K51 R52 W56 K57 I58 Q59 L60 N61 A62 T63 I72 V78 C79 E80 D81 L82

I90 L91 V92 S93 H94 P95 F102 T103 P104 R115 V118 L121 T122 T123 R124 M125 S129 D130 K131 I133 F137 L138 R139 T140 E153 M154 M155 R156 W160 L165 D170 H171 L180 K193 V194 L195 D198 T201 V218 I219 I220 E225

T241 V246 W247 L248 V249 E253 I254 N257 A258 L259 R260 P263 I272 I281 H293 I301 R306 G307 C308 V309 G310 N311 T312 T317 M326 K329 Y330 A331 R337 V338 R346 N350 Y351 R359 V364 Y367 R377 K378 I379 I380 W381

E385 T386 E387 K388 Y392 Q393 T396 I400 C420 G438 T442 S443 P444 P447 R448 H449 Y456 I460 A467 F472 T473 H477 L478 V479 A480 G485 T486 N494 K495 M502 N520 R523 L541 K544 E545 I546 P547 R548 S549 T550

M555 W563 L564 L565 V566 G567 L568 S569 V570 H571 V572 V575 M576 S584 PRO PHE GLY ARG PHE LYS ASN SER GLU GLU GLU ASP ALA L601 S610 V613 S617 G620 GLU GLY ALA PRO ARG S626 R630 I631 L632 W636 A637 G638 M641

A652 D658 V684 K685 Q686 S687 S688 I691 L699 M702 Y703 R704 R722 F729 L736 K743 V747 K778 M785 Q796 GLU CYS ASP SER ARG SER ASN ALA PRO ALA THR LEU T809 F810 E811 N812 M813 A814 L819 V820 A821 I824 V825 A826 G827

I828 F829 L830 I831 F832 I833 Y837 LYS ARG HIS LYS ASP ALA ARG ARG LYS GLN

• Molecule 4: Fab 2G7 Light Chain

Chain F:

5%

44% • 55%

MET ASP MET ARG VAL PRO ALA GLN LEU LEU GLY LEU LEU LEU LEU TRP LEU ARG GLY ALA ARG CYS D1 S7 L11 V15 R18 V19 T20 Y36 T56 G57 V58 P80 D81 Q89 K92 I104 K105 R106 THR VAL ALA ALA PRO SER VAL PHE ILE PHE

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

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

• Molecule 4: Fab 2G7 Light Chain

Chain G:

9%

43% • 55%

MET ASP MET ARG VAL PRO ALA GLN LEU LEU GLY LEU LEU LEU LEU TRP LEU ARG GLY ALA ARG CYS D1 I2 Q3 M4 T5 Q6 S9 T10 L11 S12 V15 R18 V19 T20 Q38 G41 A51 T56 G57 V58 S67 S77 P80 D81 D82 F83 Q89

K92 P98 D103 I104 K105 R106 THR VAL ALA ALA PRO SER VAL PHE ILE PHE PRO PRO SER ASP GLU GLN LEU LYS SER GLY THR ALA SER VAL VAL CYS LEU LEU ASN ASN PHE TYR PRO ARG GLU ALA LYS VAL GLN TRP LYS VAL ASP ASN ALA LEU GLN SER GLY ASN SER

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

• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-gluc opyranose

Chain I:

100%

NAG1 NAG2

4 Experimental information ⓘ

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	202786	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 $(e^-/\text{Å}^2)$	70	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.079	Depositor
Minimum map value	-0.023	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.003	Depositor
Recommended contour level	0.014	Depositor
Map size (Å)	388.80002, 388.80002, 388.80002	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.08, 1.08, 1.08	Depositor

5   Model quality (i)

5.1   Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: 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	E	0.23	0/953	0.47	0/1300
1	H	0.23	0/953	0.47	0/1300
2	A	0.24	0/6179	0.44	0/8390
2	C	0.24	0/6148	0.44	0/8343
3	B	0.24	0/6290	0.46	0/8518
3	D	0.24	0/6295	0.45	0/8529
4	F	0.24	0/838	0.47	0/1138
4	G	0.24	0/838	0.46	0/1138
All	All	0.24	0/28494	0.45	0/38656

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2   Too-close contacts (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	E	930	0	883	11	0
1	H	930	0	883	11	0
2	A	6033	0	5965	88	0
2	C	6004	0	5931	109	0
3	B	6153	0	6128	123	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	D	6158	0	6129	102	0
4	F	818	0	797	1	0
4	G	818	0	797	4	0
5	I	28	0	25	0	0
6	A	14	0	13	0	0
6	B	56	0	52	0	0
6	C	14	0	13	0	0
6	D	70	0	65	1	0
All	All	28026	0	27681	411	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 7.

All (411) 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:H:6:GLN:H	1:H:113:GLN:HE22	1.30	0.80
1:E:6:GLN:H	1:E:113:GLN:HE22	1.33	0.77
3:B:131:LYS:HB2	2:C:178:PRO:HG2	1.68	0.74
3:B:70:ASN:ND2	2:C:321:TYR:O	2.22	0.72
3:B:70:ASN:HD21	2:C:321:TYR:HB3	1.57	0.69
3:B:520:ASN:HB3	3:B:523:ARG:HD3	1.75	0.69
3:B:456:TYR:HA	3:B:460:ILE:HG12	1.75	0.68
3:B:218:VAL:HG12	3:B:246:VAL:HB	1.76	0.67
3:D:722:ARG:HH21	3:D:743:LYS:HD3	1.59	0.66
3:D:63:THR:HG22	6:D:901:NAG:H61	1.78	0.66
2:C:168:HIS:HA	2:C:198:TRP:HD1	1.60	0.66
3:B:125:MET:O	3:B:139:ARG:NH1	2.29	0.65
3:D:90:ILE:HB	3:D:118:VAL:HG12	1.79	0.64
3:B:129:SER:OG	3:B:139:ARG:NH2	2.30	0.64
2:C:630:MET:HB3	3:D:831:ILE:HG21	1.79	0.64
1:E:30:THR:HA	1:E:53:PRO:HB2	1.78	0.64
2:C:508:ALA:HB3	2:C:764:ALA:HB3	1.80	0.63
2:A:527:PRO:HB3	2:A:760:GLY:HA3	1.80	0.63
1:H:30:THR:HA	1:H:53:PRO:HB2	1.80	0.62
2:C:377:LYS:NZ	2:C:379:GLU:OE2	2.33	0.62
3:D:567:GLY:O	3:D:571:HIS:ND1	2.32	0.62
3:D:125:MET:O	3:D:139:ARG:NH1	2.32	0.61
2:A:83:ILE:HB	3:D:72:ILE:HD11	1.83	0.61
3:B:163:ILE:HD11	3:B:220:ILE:HG13	1.81	0.61
2:C:35:ASN:HB3	2:C:95:ILE:HD13	1.83	0.61

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:555:MET:O	3:D:563:TRP:NE1	2.33	0.61
2:A:174:THR:HG22	2:A:230:TYR:HB2	1.83	0.60
3:B:448:ARG:NH2	3:B:480:ALA:O	2.33	0.60
3:B:125:MET:SD	3:B:125:MET:N	2.75	0.60
2:A:324:MET:SD	2:A:324:MET:N	2.75	0.60
2:C:430:VAL:HG21	2:C:457:LYS:HD3	1.84	0.60
3:B:578:TYR:HH	3:B:604:SER:N	2.00	0.60
2:A:737:TYR:OH	2:A:741:ARG:NH1	2.35	0.59
2:A:43:SER:OG	2:A:49:ARG:NH2	2.34	0.59
2:C:577:GLU:HG3	2:C:600:THR:HG22	1.83	0.59
3:B:70:ASN:HB3	3:B:73:GLN:HB2	1.84	0.59
2:A:80:LYS:NZ	3:D:80:GLU:OE1	2.35	0.59
2:A:693:ASN:ND2	3:B:781:GLU:OE1	2.36	0.59
3:D:43:ARG:HG2	3:D:62:ALA:HB1	1.85	0.59
3:D:272:ILE:HD12	3:D:350:ASN:HB3	1.85	0.59
2:C:43:SER:OG	2:C:49:ARG:NH2	2.35	0.58
2:C:535:VAL:HG22	2:C:729:ILE:HG12	1.84	0.58
3:B:58:ILE:HD12	3:B:59:GLN:H	1.69	0.58
2:A:367:ASN:OD1	2:A:392:ARG:NH2	2.34	0.58
3:D:387:GLU:OE1	3:D:388:LYS:N	2.36	0.58
2:A:164:ASP:O	2:A:453:LYS:NZ	2.30	0.58
2:A:106:GLN:HE22	3:D:115:ARG:HH12	1.51	0.58
2:A:535:VAL:HG22	2:A:729:ILE:HG12	1.84	0.58
2:A:344:ASP:OD1	2:A:346:LYS:NZ	2.36	0.58
2:C:257:VAL:HG22	2:C:258:PRO:HD2	1.85	0.58
3:D:129:SER:OG	3:D:139:ARG:NH2	2.36	0.58
3:D:456:TYR:HA	3:D:460:ILE:HG12	1.85	0.58
2:C:456:CYS:HB3	2:C:461:ILE:HD13	1.86	0.57
2:C:279:VAL:HG12	2:C:363:VAL:HG22	1.85	0.57
3:D:338:VAL:HG22	3:D:346:ARG:HH12	1.70	0.57
2:A:647:ALA:HB3	3:B:655:LEU:HD23	1.86	0.56
3:B:46:VAL:O	3:B:50:ASN:ND2	2.38	0.56
3:B:153:GLU:OE1	3:B:156:ARG:NH2	2.36	0.56
3:B:394:MET:SD	3:B:394:MET:N	2.79	0.56
2:C:74:MET:SD	2:C:74:MET:N	2.78	0.56
3:D:225:GLU:OE2	3:D:257:ASN:ND2	2.36	0.56
2:C:406:LEU:HD22	2:C:506:VAL:HG11	1.87	0.56
2:C:437:ARG:HB2	2:C:451:ASN:HD21	1.71	0.56
2:A:386:ARG:HG2	2:A:388:ALA:H	1.69	0.56
2:A:650:ALA:HB2	3:D:652:ALA:HB1	1.88	0.56
3:B:80:GLU:OE2	2:C:80:LYS:NZ	2.32	0.56

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:713:VAL:HB	2:A:738:LYS:HE3	1.88	0.56
2:A:127:ILE:HG22	2:A:128:HIS:H	1.71	0.55
2:A:131:ALA:O	2:A:146:GLN:NE2	2.39	0.55
2:C:127:ILE:HG22	2:C:128:HIS:H	1.71	0.55
3:D:550:THR:HG21	3:D:658:ASP:HA	1.88	0.55
2:A:279:VAL:HG12	2:A:363:VAL:HG22	1.87	0.55
2:A:507:MET:HB3	2:A:763:ILE:HD11	1.87	0.55
3:D:541:LEU:HB3	3:D:729:PHE:HB3	1.87	0.55
2:A:74:MET:SD	2:A:74:MET:N	2.80	0.55
3:B:634:MET:HG2	2:C:606:TRP:HA	1.89	0.55
3:D:50:ASN:HD21	3:D:60:LEU:HB2	1.71	0.55
3:B:685:LYS:HG3	3:B:686:GLN:H	1.71	0.55
2:C:432:ASN:OD1	2:C:465:LYS:NZ	2.38	0.55
3:D:125:MET:N	3:D:125:MET:SD	2.79	0.55
3:D:331:ALA:HA	3:D:337:ARG:HA	1.89	0.55
2:C:259:SER:HB3	2:C:279:VAL:HG23	1.89	0.54
2:A:119:HIS:HB3	2:A:321:TYR:HE2	1.71	0.54
3:B:118:VAL:HG23	3:B:137:PHE:HA	1.89	0.54
3:D:104:PRO:HG3	3:D:123:THR:HG21	1.90	0.54
2:C:157:VAL:HG21	2:C:361:LEU:HD23	1.88	0.54
2:A:39:MET:HG2	2:A:72:LEU:HB2	1.88	0.54
2:A:193:ASN:HD21	3:D:495:LYS:HG3	1.72	0.54
2:A:421:ASP:OD1	2:A:422:ILE:N	2.40	0.54
2:C:90:MET:HG3	2:C:94:ARG:HH21	1.73	0.54
2:C:416:PHE:HE1	2:C:796:LEU:HD21	1.72	0.54
2:A:326:ARG:H	2:A:326:ARG:HD3	1.73	0.54
2:C:175:THR:HG23	2:C:206:LEU:HB3	1.88	0.54
2:A:508:ALA:HB3	2:A:764:ALA:HB3	1.90	0.54
1:H:99:ASP:OD2	3:D:51:LYS:NZ	2.29	0.54
2:C:438:LYS:HB2	2:C:479:LEU:HD12	1.89	0.54
3:B:283:ASP:OD2	3:B:335:THR:OG1	2.24	0.54
3:D:257:ASN:OD1	3:D:260:ARG:NH2	2.41	0.54
2:A:573:VAL:HG22	2:A:604:ALA:HB3	1.90	0.53
3:D:544:LYS:HD3	3:D:545:GLU:H	1.72	0.53
3:B:170:ASP:OD1	3:B:171:HIS:N	2.42	0.53
2:C:776:ASP:OD1	2:C:777:LEU:N	2.42	0.53
2:A:531:THR:OG1	2:A:731:ASP:OD1	2.26	0.53
3:B:272:ILE:HD12	3:B:350:ASN:HB3	1.91	0.53
3:D:259:LEU:O	3:D:359:ARG:NH2	2.41	0.53
3:D:520:ASN:OD1	3:D:523:ARG:NH1	2.38	0.53
3:D:544:LYS:HB3	3:D:546:ILE:HG13	1.91	0.53

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:196:VAL:HA	2:A:427:GLU:HG3	1.91	0.53
2:A:298:ILE:HD11	2:A:348:LEU:HB2	1.90	0.53
3:B:718:ILE:HD13	3:B:739:GLU:HG3	1.90	0.53
3:B:415:LEU:HD21	3:B:421:LYS:HE2	1.91	0.53
2:A:157:VAL:HG21	2:A:361:LEU:HD23	1.89	0.53
2:C:436:CYS:O	2:C:454:LYS:N	2.41	0.53
3:B:528:GLU:HG2	3:B:769:LYS:HD2	1.91	0.52
3:D:36:ARG:NH2	3:D:39:GLU:OE1	2.38	0.52
3:D:396:THR:O	3:D:473:THR:OG1	2.22	0.52
3:B:646:SER:O	3:B:650:ASN:ND2	2.32	0.52
3:B:745:ASP:OD1	3:B:745:ASP:N	2.42	0.52
2:A:429:CYS:HB3	2:A:433:THR:HG21	1.92	0.52
2:A:634:TRP:HD1	3:B:824:ILE:HG12	1.74	0.52
1:H:39:GLN:OE1	4:G:38:GLN:NE2	2.33	0.52
3:B:131:LYS:NZ	3:B:343:ASP:O	2.39	0.52
2:C:364:ILE:HD12	2:C:372:TRP:HB3	1.91	0.52
2:A:133:MET:SD	2:A:133:MET:N	2.83	0.52
2:A:606:TRP:HZ2	3:D:630:ARG:HA	1.75	0.52
3:B:363:GLN:OE1	3:B:375:ASN:ND2	2.43	0.52
2:A:406:LEU:HD22	2:A:506:VAL:HG11	1.92	0.52
3:B:702:MET:O	3:B:705:HIS:ND1	2.43	0.52
3:D:170:ASP:OD1	3:D:171:HIS:N	2.43	0.52
2:C:526:VAL:HG11	2:C:780:LEU:HD21	1.93	0.51
3:D:610:SER:OG	3:D:636:TRP:NE1	2.38	0.51
3:B:337:ARG:NH2	3:B:339:GLU:OE1	2.39	0.51
3:B:541:LEU:HD11	3:B:746:LEU:HB3	1.91	0.51
2:C:540:SER:OG	2:C:661:GLN:NE2	2.44	0.51
3:B:33:LEU:HD13	3:B:38:HIS:HB3	1.93	0.51
1:E:12:ARG:NH1	1:E:17:SER:O	2.43	0.51
2:C:360:ARG:HA	2:C:379:GLU:HB3	1.90	0.51
1:H:12:ARG:NH1	1:H:17:SER:O	2.43	0.51
3:B:351:TYR:HB2	3:B:367:TYR:HB3	1.91	0.51
2:A:533:ILE:HB	2:A:756:PHE:HB3	1.93	0.51
2:A:688:GLY:O	2:A:692:ARG:NH2	2.43	0.51
2:C:672:ARG:NE	2:C:675:ASP:OD2	2.36	0.51
3:D:42:PHE:CG	3:D:281:ILE:HG21	2.46	0.51
3:D:249:VAL:HG11	3:D:254:ILE:HG23	1.93	0.51
3:D:544:LYS:HG2	3:D:747:VAL:HB	1.92	0.51
3:B:115:ARG:NH1	2:C:106:GLN:OE1	2.38	0.51
3:D:351:TYR:HB2	3:D:367:TYR:HB3	1.93	0.51
3:B:752:LEU:HD22	3:B:755:ARG:HG2	1.93	0.50

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:180:TYR:HD2	2:C:230:TYR:HB3	1.76	0.50
2:C:281:TYR:HE1	2:C:360:ARG:HD2	1.76	0.50
3:B:495:LYS:HG3	2:C:193:ASN:HD21	1.76	0.50
2:C:531:THR:OG1	2:C:731:ASP:OD1	2.29	0.50
2:A:560:MET:SD	2:A:560:MET:N	2.83	0.50
2:A:765:LEU:HD21	2:A:775:ILE:HD12	1.93	0.50
3:B:88:TYR:HB3	3:B:321:PHE:HE2	1.74	0.50
3:B:155:MET:HA	3:B:160:TRP:HD1	1.76	0.50
3:B:634:MET:HB3	2:C:609:TRP:CD1	2.47	0.50
2:C:611:LEU:HD11	2:C:634:TRP:HE3	1.77	0.50
3:D:165:LEU:HD22	3:D:180:LEU:HD23	1.93	0.50
2:C:35:ASN:HB2	2:C:95:ILE:HA	1.93	0.50
3:B:767:PRO:O	3:B:770:GLN:NE2	2.44	0.50
3:D:218:VAL:HG13	3:D:246:VAL:HB	1.94	0.50
3:D:220:ILE:HG12	3:D:248:LEU:HB2	1.94	0.50
3:D:448:ARG:NH2	3:D:480:ALA:O	2.43	0.50
3:B:639:PHE:CE1	2:C:820:VAL:HG22	2.47	0.50
2:C:102:ASP:HB3	2:C:130:GLY:H	1.77	0.49
2:C:600:THR:OG1	2:C:601:ILE:N	2.45	0.49
3:D:809:THR:OG1	3:D:810:PHE:N	2.44	0.49
2:A:715:ASP:OD1	2:A:715:ASP:N	2.34	0.49
3:B:522:GLU:OE1	3:B:695:ARG:NH2	2.40	0.49
2:A:191:VAL:HG23	2:A:198:TRP:HE3	1.78	0.49
1:H:91:THR:HG23	1:H:118:THR:HA	1.94	0.49
2:A:360:ARG:HA	2:A:379:GLU:HB2	1.94	0.49
3:B:193:LYS:HE2	3:B:195:LEU:HD11	1.94	0.49
3:B:165:LEU:HD22	3:B:180:LEU:HD23	1.95	0.49
3:B:415:LEU:HD13	3:B:420:CYS:HA	1.94	0.49
2:C:174:THR:HG22	2:C:230:TYR:HB2	1.95	0.49
2:C:703:GLN:O	2:C:706:THR:OG1	2.31	0.49
2:A:526:VAL:HG11	2:A:780:LEU:HD21	1.95	0.49
2:C:248:LEU:O	2:C:255:TRP:NE1	2.39	0.49
3:B:766:SER:O	3:B:769:LYS:NZ	2.41	0.48
2:C:180:TYR:CD2	2:C:230:TYR:HB3	2.48	0.48
3:B:396:THR:O	3:B:473:THR:OG1	2.28	0.48
3:B:578:TYR:HB3	3:B:582:ARG:HH12	1.78	0.48
2:A:224:SER:OG	2:A:225:SER:N	2.47	0.48
3:B:286:GLY:O	3:B:290:GLN:NE2	2.46	0.48
1:E:47:TRP:HZ2	1:E:50:TRP:HD1	1.62	0.48
2:A:601:ILE:HD13	2:A:601:ILE:H	1.77	0.48
2:C:423:ASP:OD2	2:C:426:THR:OG1	2.28	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:654:PHE:HA	2:C:809:SER:HA	1.95	0.48
2:C:49:ARG:HA	2:C:52:ARG:HG2	1.95	0.48
3:D:95:PRO:HG3	3:D:102:PHE:HB3	1.95	0.48
4:G:6:GLN:HG3	4:G:98:PRO:HD2	1.96	0.48
3:B:541:LEU:HB2	3:B:736:LEU:HG	1.95	0.48
3:D:92:VAL:HG21	3:D:104:PRO:HB3	1.96	0.48
2:C:365:VAL:HG23	2:C:375:VAL:HG21	1.96	0.48
2:A:636:PHE:HB2	3:B:615:LEU:HD22	1.96	0.47
3:B:225:GLU:OE2	3:B:257:ASN:ND2	2.40	0.47
3:B:630:ARG:O	3:B:634:MET:HG3	2.13	0.47
2:C:35:ASN:ND2	2:C:68:ASN:OD1	2.46	0.47
3:D:153:GLU:OE1	3:D:156:ARG:NH1	2.33	0.47
3:B:47:ASN:O	3:B:51:LYS:HB2	2.14	0.47
3:B:559:GLN:OE1	2:C:811:GLN:NE2	2.47	0.47
2:C:207:ASP:OD1	2:C:214:LYS:NZ	2.40	0.47
3:B:790:LYS:HG2	3:B:794:ARG:HD2	1.95	0.47
1:E:91:THR:HG23	1:E:118:THR:HA	1.95	0.47
3:B:460:ILE:HG13	3:B:461:ASP:N	2.29	0.47
3:B:569:SER:HA	3:B:572:VAL:HG22	1.97	0.47
3:B:654:PHE:O	3:B:659:ARG:NH2	2.47	0.47
2:C:398:ASP:N	2:C:398:ASP:OD1	2.48	0.47
4:F:36:TYR:HE1	4:F:89:GLN:HB3	1.78	0.47
2:A:229:LEU:HB3	2:A:257:VAL:HG12	1.96	0.47
3:B:400:ILE:O	3:B:477:HIS:N	2.45	0.47
2:A:45:ASP:HB3	2:A:48:GLU:HG2	1.96	0.47
3:B:220:ILE:HG12	3:B:248:LEU:HB2	1.96	0.47
3:B:337:ARG:NH2	3:B:348:PHE:HB2	2.30	0.47
2:A:407:SER:HB2	2:A:478:TYR:HE1	1.79	0.47
1:H:47:TRP:HZ2	1:H:50:TRP:HD1	1.63	0.46
3:B:697:VAL:HG11	2:C:431:ARG:HB2	1.97	0.46
2:C:52:ARG:HA	2:C:55:TRP:CE2	2.50	0.46
2:C:191:VAL:HG23	2:C:198:TRP:HE3	1.80	0.46
2:C:516:GLU:OE2	3:D:778:LYS:NZ	2.32	0.46
3:D:486:THR:HG23	3:D:691:ILE:HD11	1.97	0.46
2:C:408:ILE:O	2:C:478:TYR:N	2.37	0.46
3:B:523:ARG:HB3	3:B:529:PHE:CE1	2.50	0.46
2:C:274:SER:HA	2:C:366:LEU:HD22	1.97	0.46
2:A:415:PRO:HG3	2:A:737:TYR:CG	2.50	0.46
3:B:337:ARG:HH22	3:B:348:PHE:HB2	1.78	0.46
3:B:786:GLU:OE1	3:B:786:GLU:N	2.42	0.46
2:A:191:VAL:HG11	2:A:200:MET:HG3	1.97	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:627:SER:O	2:C:630:MET:HG3	2.16	0.46
2:C:667:ASP:OD1	2:C:668:LYS:N	2.49	0.46
3:D:140:THR:HB	3:D:346:ARG:HH21	1.80	0.46
3:D:812:ASN:ND2	3:D:813:MET:SD	2.79	0.46
1:E:11:VAL:HG22	1:E:118:THR:HB	1.97	0.46
2:C:177:PHE:HB3	2:C:180:TYR:CD1	2.51	0.46
3:B:92:VAL:HG21	3:B:104:PRO:HB3	1.97	0.45
2:C:191:VAL:HG11	2:C:200:MET:HG3	1.97	0.45
3:D:198:ASP:HB2	3:D:201:THR:HB	1.96	0.45
3:D:381:TRP:HB2	3:D:385:GLU:HG3	1.98	0.45
3:B:467:ALA:HA	3:B:472:PHE:HB2	1.99	0.45
3:B:58:ILE:HB	3:B:60:LEU:HD22	1.98	0.45
2:C:408:ILE:N	2:C:476:ASP:O	2.43	0.45
2:A:331:MET:SD	2:A:331:MET:N	2.84	0.45
3:B:168:SER:OG	3:B:227:ASP:OD2	2.33	0.45
3:B:639:PHE:HE1	2:C:820:VAL:HG22	1.82	0.45
2:C:360:ARG:H	2:C:360:ARG:NH1	2.14	0.45
2:C:408:ILE:HB	2:C:477:LEU:HA	1.97	0.45
3:D:38:HIS:HA	3:D:41:MET:HG2	1.99	0.45
3:D:78:VAL:HA	3:D:82:LEU:HD13	1.98	0.45
3:D:131:LYS:NZ	3:D:137:PHE:O	2.33	0.45
2:C:244:ARG:NH1	2:C:397:SER:O	2.49	0.45
2:A:175:THR:HG23	2:A:206:LEU:HB3	1.99	0.45
2:A:302:ALA:HB1	2:A:334:LEU:HD11	1.98	0.45
3:B:239:ASN:O	3:B:239:ASN:ND2	2.45	0.45
2:C:512:LEU:HD23	2:C:512:LEU:H	1.82	0.45
2:C:698:TYR:HB3	2:C:701:MET:HB3	1.99	0.45
2:C:820:VAL:O	2:C:823:MET:HG3	2.16	0.45
3:D:42:PHE:CE2	3:D:281:ILE:HG13	2.52	0.45
2:A:243:ALA:HB1	2:A:248:LEU:HB2	1.99	0.45
3:D:153:GLU:HG3	3:D:367:TYR:HE1	1.81	0.45
3:D:523:ARG:NH1	3:D:688:SER:OG	2.49	0.45
2:A:611:LEU:HD22	2:A:631:VAL:HB	1.99	0.45
2:C:168:HIS:O	2:C:199:ASP:N	2.35	0.45
2:A:63:LEU:HD11	2:A:300:THR:HB	1.99	0.44
3:B:407:PRO:HG3	3:B:735:VAL:HG13	1.99	0.44
3:D:830:LEU:HD12	3:D:833:ILE:HD11	1.99	0.44
2:A:260:LEU:HD23	2:A:260:LEU:H	1.81	0.44
3:B:58:ILE:H	3:B:58:ILE:HG13	1.50	0.44
3:D:438:GLY:HA3	3:D:478:LEU:HB2	1.99	0.44
2:C:359:PRO:HD2	2:C:378:TRP:HZ3	1.81	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:485:GLY:HA3	3:D:502:MET:HG2	1.98	0.44
2:A:177:PHE:HB3	2:A:180:TYR:CD2	2.52	0.44
3:B:95:PRO:HG3	3:B:102:PHE:HB3	1.99	0.44
2:C:500:VAL:O	2:C:766:GLN:NE2	2.49	0.44
3:D:572:VAL:HA	3:D:575:VAL:HG22	2.00	0.44
3:D:830:LEU:O	3:D:833:ILE:HG13	2.18	0.44
2:C:38:VAL:HA	2:C:99:VAL:HB	1.99	0.44
2:C:188:LYS:NZ	2:C:192:ASP:OD2	2.49	0.44
3:D:241:THR:HG21	3:D:263:PRO:HG3	2.00	0.44
3:B:721:VAL:HG22	3:B:726:LEU:HB2	1.99	0.43
1:H:33:TYR:CE2	1:H:101:THR:HA	2.53	0.43
3:B:153:GLU:HG3	3:B:367:TYR:HE1	1.83	0.43
3:B:563:TRP:HA	3:B:566:VAL:HG22	2.01	0.43
2:A:274:SER:HA	2:A:366:LEU:HD22	1.99	0.43
2:A:651:ALA:HB2	3:B:656:VAL:HG12	1.99	0.43
3:B:34:SER:HB2	3:B:96:PRO:HB3	1.99	0.43
3:B:635:VAL:HG11	2:C:827:ALA:HB2	1.99	0.43
2:C:719:SER:HB2	2:C:724:LYS:HB2	1.99	0.43
2:A:190:THR:HG23	3:D:494:ASN:HD21	1.84	0.43
2:A:632:SER:HB3	3:B:615:LEU:HB2	2.00	0.43
3:B:390:ARG:O	3:B:393:GLN:NE2	2.37	0.43
3:D:33:LEU:HD13	3:D:42:PHE:HD2	1.84	0.43
3:D:91:LEU:HB3	3:D:121:LEU:HD21	2.00	0.43
2:A:780:LEU:HA	2:A:783:VAL:HG12	2.01	0.43
3:D:447:PRO:HB2	3:D:449:HIS:HE1	1.83	0.43
3:B:505:LEU:HD23	3:B:527:ILE:HG12	2.00	0.43
3:B:551:LEU:HD21	3:B:655:LEU:HD13	2.00	0.43
1:E:51:ILE:HD13	1:E:58:THR:HG22	2.00	0.43
3:B:268:GLY:N	3:B:354:MET:O	2.51	0.43
2:C:270:LYS:NZ	2:C:271:GLU:OE2	2.49	0.43
2:C:421:ASP:OD1	2:C:454:LYS:NZ	2.50	0.43
2:C:422:ILE:HG13	2:C:454:LYS:HA	2.01	0.43
1:H:39:GLN:HB2	1:H:45:LEU:HD23	2.00	0.43
3:D:59:GLN:HE21	3:D:293:HIS:CE1	2.37	0.43
3:D:193:LYS:HE2	3:D:195:LEU:HD21	2.01	0.43
3:B:719:GLN:NE2	3:B:722:ARG:HH21	2.17	0.43
3:D:50:ASN:ND2	3:D:60:LEU:HB2	2.34	0.43
3:B:221:LEU:HD22	3:B:253:GLU:HG2	2.01	0.43
2:C:429:CYS:HB3	2:C:433:THR:HG21	2.01	0.43
3:D:467:ALA:HA	3:D:472:PHE:HB2	2.01	0.43
3:D:520:ASN:HD21	3:D:523:ARG:HG3	1.84	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:76:ARG:HG3	3:D:310:GLY:HA2	2.01	0.42
2:A:427:GLU:O	2:A:428:THR:OG1	2.30	0.42
2:C:252:ASP:OD1	2:C:252:ASP:N	2.51	0.42
2:C:326:ARG:H	2:C:326:ARG:HD3	1.83	0.42
2:C:408:ILE:HD11	2:C:475:TYR:HD1	1.84	0.42
2:A:496:MET:HE3	2:A:512:LEU:HD13	2.01	0.42
2:C:386:ARG:HG2	2:C:388:ALA:H	1.85	0.42
2:A:136:ALA:HA	3:D:133:ILE:HG12	2.01	0.42
2:A:557:VAL:HG12	2:A:559:VAL:HG22	2.02	0.42
3:B:295:LEU:HG	3:B:301:ILE:HG21	2.01	0.42
3:B:337:ARG:O	3:B:346:ARG:NH2	2.52	0.42
2:A:178:PRO:HB3	3:D:131:LYS:HB2	2.02	0.42
3:B:249:VAL:HG11	3:B:254:ILE:HG23	2.02	0.42
3:B:509:GLN:HE21	3:B:509:GLN:HB3	1.64	0.42
3:B:546:ILE:HG23	3:B:548:ARG:HH11	1.84	0.42
2:C:294:ASP:O	2:C:298:ILE:HG12	2.19	0.42
2:A:173:VAL:HA	2:A:204:ILE:HB	2.02	0.42
3:B:369:GLY:O	3:B:370:THR:OG1	2.29	0.42
2:C:684:THR:HG22	2:C:705:MET:HG2	2.02	0.42
3:D:39:GLU:O	3:D:43:ARG:HG3	2.20	0.42
1:H:51:ILE:HD13	1:H:58:THR:HG22	2.02	0.42
3:B:814:ALA:HA	3:B:817:PHE:HD2	1.85	0.42
2:C:691:GLU:HA	2:C:694:ILE:HG12	2.02	0.42
1:H:11:VAL:HG22	1:H:118:THR:HB	2.01	0.42
2:A:473:PHE:HD1	2:A:473:PHE:HA	1.64	0.42
3:B:540:ILE:HD12	3:B:730:ILE:HG12	2.02	0.42
3:D:249:VAL:HG13	3:D:253:GLU:HB2	2.02	0.42
3:D:364:VAL:HG21	3:D:379:ILE:HG12	2.02	0.42
3:D:393:GLN:HE21	3:D:393:GLN:HB2	1.71	0.42
3:B:115:ARG:HD3	3:B:314:ILE:HG23	2.02	0.41
3:B:447:PRO:O	3:B:449:HIS:ND1	2.47	0.41
3:B:532:PRO:HG2	3:B:535:TYR:CZ	2.55	0.41
3:B:681:TYR:O	3:B:705:HIS:NE2	2.53	0.41
3:B:649:ALA:HB3	2:C:649:LEU:HD23	2.03	0.41
3:D:56:TRP:CZ2	4:G:2:ILE:HD13	2.55	0.41
2:A:90:MET:O	2:A:94:ARG:NH2	2.53	0.41
2:A:252:ASP:OD1	2:A:252:ASP:N	2.53	0.41
3:B:790:LYS:HA	3:B:794:ARG:HB2	2.02	0.41
2:C:417:VAL:HG12	2:C:419:VAL:HG12	2.02	0.41
2:C:665:LEU:HD12	2:C:756:PHE:HB2	2.02	0.41
2:A:550:LEU:HD21	2:A:822:TYR:HE2	1.85	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:244:ARG:HG3	2:C:397:SER:HB2	2.02	0.41
3:D:613:VAL:HG11	3:D:636:TRP:HD1	1.85	0.41
1:E:32:TYR:HD2	1:E:100:ALA:HA	1.85	0.41
4:G:92:LYS:HB2	4:G:92:LYS:HE2	1.82	0.41
2:C:380:ASN:O	2:C:380:ASN:ND2	2.53	0.41
3:D:33:LEU:HB2	3:D:39:GLU:HG2	2.01	0.41
3:D:632:LEU:HA	3:D:636:TRP:CE3	2.55	0.41
3:B:29:ILE:HD12	3:B:89:ALA:HB3	2.02	0.41
3:B:434:VAL:HG11	3:B:474:TYR:HE2	1.86	0.41
3:D:155:MET:HA	3:D:160:TRP:HD1	1.86	0.41
3:D:541:LEU:HB2	3:D:736:LEU:HG	2.02	0.41
2:A:102:ASP:HB3	2:A:130:GLY:H	1.85	0.41
3:D:447:PRO:O	3:D:449:HIS:ND1	2.44	0.41
3:D:638:GLY:O	3:D:641:MET:HG2	2.20	0.41
1:E:39:GLN:HB2	1:E:45:LEU:HD23	2.02	0.41
3:B:346:ARG:NH1	3:B:347:LYS:O	2.54	0.41
3:B:414:THR:HG23	3:B:453:GLN:HA	2.02	0.41
2:C:57:PRO:HB3	2:C:300:THR:HG21	2.02	0.41
2:C:415:PRO:HD2	2:C:734:VAL:HG22	2.02	0.41
3:D:699:LEU:HB3	3:D:702:MET:HB2	2.02	0.41
2:A:151:ILE:HA	2:A:154:GLN:HB2	2.03	0.41
2:A:240:LEU:HD13	2:A:240:LEU:HA	1.87	0.41
2:A:415:PRO:HG3	2:A:737:TYR:CD2	2.56	0.41
2:A:474:THR:HG22	2:A:475:TYR:H	1.86	0.41
3:B:731:TRP:CG	3:B:732:ASP:N	2.89	0.41
2:C:229:LEU:HD21	2:C:255:TRP:HZ3	1.85	0.41
2:C:811:GLN:HE21	2:C:811:GLN:HB3	1.61	0.41
3:D:93:SER:HA	3:D:121:LEU:HB2	2.02	0.41
3:D:400:ILE:O	3:D:477:HIS:N	2.43	0.41
3:D:632:LEU:O	3:D:636:TRP:HB2	2.21	0.41
3:D:685:LYS:HD2	3:D:685:LYS:HA	1.80	0.41
2:A:282:ASP:OD1	2:A:283:ASP:N	2.46	0.41
3:B:127:ILE:HG22	3:B:171:HIS:ND1	2.36	0.41
3:D:253:GLU:OE1	3:D:253:GLU:N	2.53	0.41
2:A:35:ASN:ND2	2:A:68:ASN:OD1	2.35	0.40
3:B:28:ASN:HA	3:B:61:ASN:HB3	2.03	0.40
2:C:416:PHE:O	2:C:458:GLY:HA3	2.20	0.40
2:C:630:MET:HE2	3:D:828:ILE:HG22	2.03	0.40
2:A:45:ASP:OD2	2:A:47:THR:OG1	2.24	0.40
3:D:544:LYS:HD3	3:D:545:GLU:N	2.35	0.40
2:A:408:ILE:HG21	2:A:464:LEU:HD11	2.03	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:421:LYS:O	3:B:433:LYS:NZ	2.38	0.40
3:B:662:GLU:HB2	3:B:671:ARG:HH12	1.86	0.40
2:C:605:ILE:HG22	2:C:609:TRP:CD1	2.56	0.40
3:D:569:SER:HA	3:D:572:VAL:HG22	2.03	0.40
1:E:109:ASP:OD1	1:E:110:TYR:N	2.54	0.40
3:B:38:HIS:HA	3:B:41:MET:HG2	2.04	0.40
3:D:810:PHE:CE2	3:D:812:ASN:HB3	2.57	0.40
1:E:33:TYR:CE2	1:E:101:THR:HA	2.57	0.40
2:A:719:SER:HB2	2:A:724:LYS:HB3	2.03	0.40
3:B:71:ALA:HB3	2:C:321:TYR:HE2	1.86	0.40
3:B:290:GLN:O	3:B:294:GLU:HG2	2.21	0.40
3:B:341:ASN:OD1	3:B:341:ASN:N	2.54	0.40
3:B:447:PRO:HB2	3:B:449:HIS:HE1	1.86	0.40
2:C:115:PHE:O	2:C:118:SER:OG	2.30	0.40
2:C:547:SER:HB2	2:C:550:LEU:HD12	2.04	0.40
3:D:520:ASN:ND2	3:D:523:ARG:H	2.20	0.40
3:D:813:MET:SD	3:D:813:MET:N	2.95	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	E	120/253 (47%)	119 (99%)	1 (1%)	0	100	100
1	H	120/253 (47%)	119 (99%)	1 (1%)	0	100	100
2	A	751/841 (89%)	724 (96%)	27 (4%)	0	100	100
2	C	748/841 (89%)	721 (96%)	27 (4%)	0	100	100
3	B	770/847 (91%)	746 (97%)	23 (3%)	1 (0%)	48	79
3	D	772/847 (91%)	742 (96%)	30 (4%)	0	100	100
4	F	104/234 (44%)	102 (98%)	2 (2%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	G	104/234 (44%)	100 (96%)	4 (4%)	0	100	100
All	All	3489/4350 (80%)	3373 (97%)	115 (3%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	B	370	THR

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	E	98/212 (46%)	97 (99%)	1 (1%)	73	81
1	H	98/212 (46%)	97 (99%)	1 (1%)	73	81
2	A	669/729 (92%)	633 (95%)	36 (5%)	18	45
2	C	663/729 (91%)	643 (97%)	20 (3%)	36	59
3	B	671/730 (92%)	642 (96%)	29 (4%)	25	50
3	D	672/730 (92%)	644 (96%)	28 (4%)	25	51
4	F	92/205 (45%)	90 (98%)	2 (2%)	47	66
4	G	92/205 (45%)	91 (99%)	1 (1%)	70	80
All	All	3055/3752 (81%)	2937 (96%)	118 (4%)	30	53

All (118) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	H	72	ARG
2	A	42	HIS
2	A	74	MET
2	A	76	ARG
2	A	164	ASP
2	A	170	PHE
2	A	205	THR

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	A	207	ASP
2	A	324	MET
2	A	326	ARG
2	A	331	MET
2	A	360	ARG
2	A	389	VAL
2	A	419	VAL
2	A	436	CYS
2	A	464	LEU
2	A	473	PHE
2	A	474	THR
2	A	517	GLU
2	A	560	MET
2	A	599	PHE
2	A	601	ILE
2	A	608	LEU
2	A	619	VAL
2	A	634	TRP
2	A	636	PHE
2	A	641	PHE
2	A	687	ASN
2	A	692	ARG
2	A	697	ASN
2	A	701	MET
2	A	711	LYS
2	A	715	ASP
2	A	720	LEU
2	A	773	ARG
2	A	792	GLU
2	A	796	LEU
3	B	57	LYS
3	B	58	ILE
3	B	72	ILE
3	B	79	CYS
3	B	118	VAL
3	B	125	MET
3	B	127	ILE
3	B	131	LYS
3	B	167	VAL
3	B	239	ASN
3	B	312	THR
3	B	320	LEU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
3	B	321	PHE
3	B	337	ARG
3	B	343	ASP
3	B	363	GLN
3	B	377	ARG
3	B	460	ILE
3	B	462	LEU
3	B	468	ARG
3	B	509	GLN
3	B	607	MET
3	B	627	PHE
3	B	641	MET
3	B	663	ARG
3	B	684	VAL
3	B	704	ARG
3	B	785	MET
3	B	817	PHE
2	C	74	MET
2	C	76	ARG
2	C	138	LYS
2	C	181	ARG
2	C	257	VAL
2	C	310	PHE
2	C	321	TYR
2	C	326	ARG
2	C	331	MET
2	C	360	ARG
2	C	377	LYS
2	C	389	VAL
2	C	456	CYS
2	C	473	PHE
2	C	480	VAL
2	C	557	VAL
2	C	561	MET
2	C	599	PHE
2	C	811	GLN
2	C	823	MET
3	D	48	GLN
3	D	52	ARG
3	D	57	LYS
3	D	59	GLN
3	D	79	CYS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
3	D	102	PHE
3	D	301	ILE
3	D	306	ARG
3	D	308	CYS
3	D	312	THR
3	D	317	THR
3	D	326	MET
3	D	329	LYS
3	D	377	ARG
3	D	387	GLU
3	D	392	TYR
3	D	393	GLN
3	D	420	CYS
3	D	460	ILE
3	D	548	ARG
3	D	555	MET
3	D	684	VAL
3	D	686	GLN
3	D	702	MET
3	D	703	TYR
3	D	704	ARG
3	D	785	MET
3	D	813	MET
1	E	72	ARG
4	F	89	GLN
4	F	92	LYS
4	G	89	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (36) such sidechains are listed below:

Mol	Chain	Res	Type
2	A	146	GLN
2	A	380	ASN
2	A	503	GLN
2	A	671	GLN
2	A	766	GLN
3	B	48	GLN
3	B	50	ASN
3	B	161	ASN
3	B	270	GLN
3	B	290	GLN
3	B	371	HIS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
3	B	477	HIS
3	B	509	GLN
3	B	719	GLN
2	C	59	GLN
2	C	152	GLN
2	C	153	GLN
2	C	154	GLN
2	C	218	GLN
2	C	451	ASN
2	C	485	HIS
2	C	661	GLN
2	C	766	GLN
2	C	811	GLN
3	D	50	ASN
3	D	270	GLN
3	D	293	HIS
3	D	393	GLN
3	D	487	GLN
3	D	494	ASN
3	D	556	GLN
4	F	42	GLN
4	F	55	GLN
4	F	89	GLN
4	G	42	GLN
4	G	55	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 ⓘ

2 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	$\#\|Z\| > 2$
5	NAG	I	1	3,5	14,14,15	0.29	0	17,19,21	0.49	0
5	NAG	I	2	5	14,14,15	0.22	0	17,19,21	0.41	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	NAG	I	1	3,5	-	0/6/23/26	0/1/1/1
5	NAG	I	2	5	-	0/6/23/26	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

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.

Oligosaccharide Chain I

Bond lengths

Bond angles

Torsions

Rings
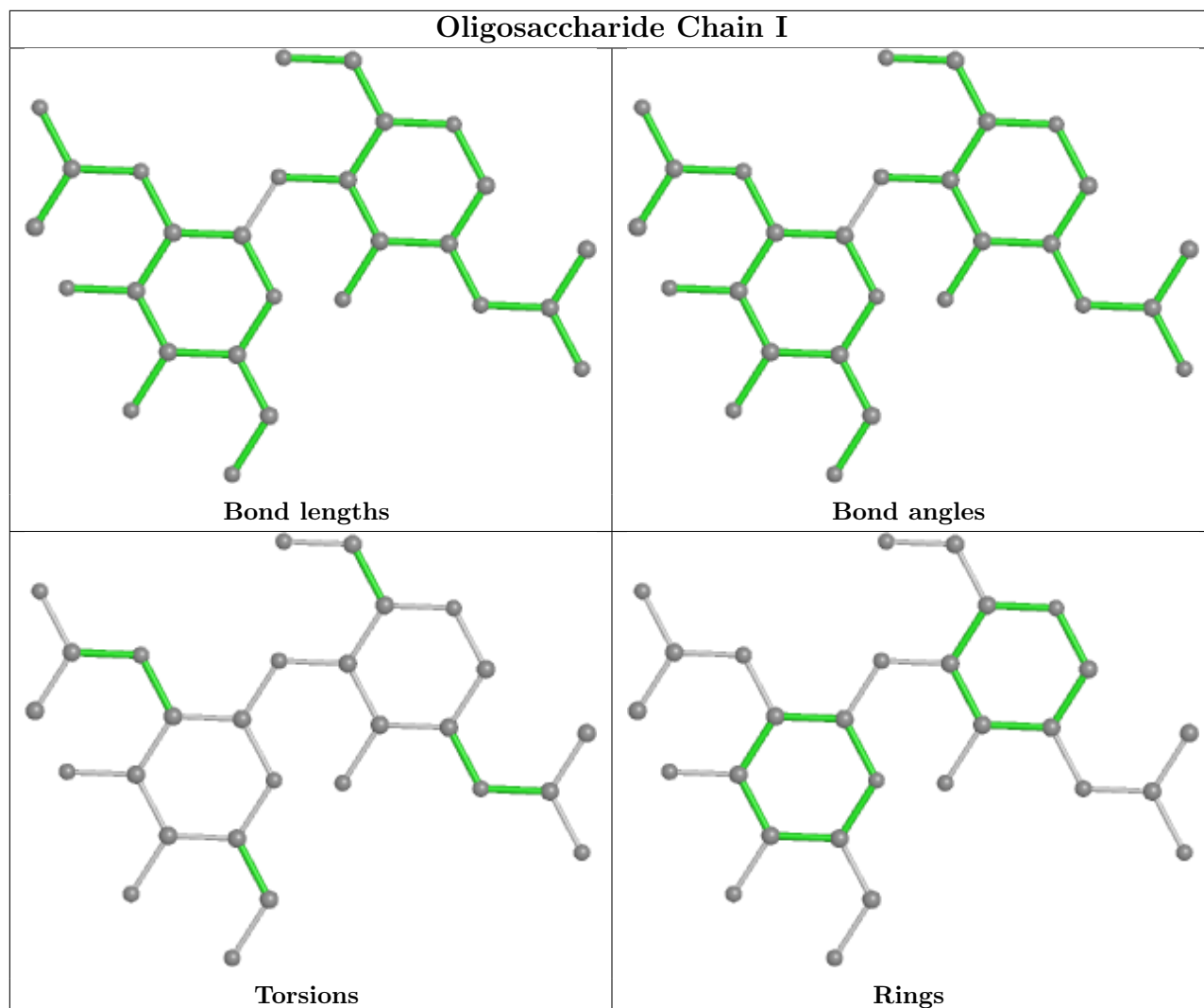
5.6 Ligand geometry ⓘ

11 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#|Z| > 2$	Counts	RMSZ	$\#|Z| > 2$
6	NAG	D	902	3	14,14,15	0.22	0	17,19,21	0.41	0
6	NAG	A	901	2	14,14,15	0.27	0	17,19,21	0.35	0
6	NAG	D	905	3	14,14,15	0.23	0	17,19,21	0.41	0
6	NAG	D	901	3	14,14,15	0.23	0	17,19,21	0.41	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
6	NAG	D	903	3	14,14,15	0.22	0	17,19,21	0.42	0
6	NAG	B	901	3	14,14,15	0.22	0	17,19,21	0.42	0
6	NAG	D	904	3	14,14,15	0.24	0	17,19,21	0.42	0
6	NAG	B	904	3	14,14,15	0.22	0	17,19,21	0.42	0
6	NAG	B	902	3	14,14,15	0.22	0	17,19,21	0.40	0
6	NAG	C	901	2	14,14,15	0.21	0	17,19,21	0.41	0
6	NAG	B	903	3	14,14,15	0.20	0	17,19,21	0.43	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
6	NAG	D	902	3	-	2/6/23/26	0/1/1/1
6	NAG	A	901	2	-	1/6/23/26	0/1/1/1
6	NAG	D	905	3	-	1/6/23/26	0/1/1/1
6	NAG	D	901	3	-	2/6/23/26	0/1/1/1
6	NAG	D	903	3	-	2/6/23/26	0/1/1/1
6	NAG	B	901	3	-	1/6/23/26	0/1/1/1
6	NAG	D	904	3	-	2/6/23/26	0/1/1/1
6	NAG	B	904	3	-	2/6/23/26	0/1/1/1
6	NAG	B	902	3	-	2/6/23/26	0/1/1/1
6	NAG	C	901	2	-	2/6/23/26	0/1/1/1
6	NAG	B	903	3	-	2/6/23/26	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (19) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	D	904	NAG	O5-C5-C6-O6
6	D	901	NAG	O5-C5-C6-O6
6	D	902	NAG	O5-C5-C6-O6
6	D	901	NAG	C4-C5-C6-O6
6	D	902	NAG	C4-C5-C6-O6
6	B	903	NAG	O5-C5-C6-O6
6	D	904	NAG	C4-C5-C6-O6

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms
6	B	902	NAG	O5-C5-C6-O6
6	B	904	NAG	C4-C5-C6-O6
6	B	902	NAG	C4-C5-C6-O6
6	D	903	NAG	O5-C5-C6-O6
6	B	903	NAG	C4-C5-C6-O6
6	D	903	NAG	C4-C5-C6-O6
6	B	904	NAG	O5-C5-C6-O6
6	B	901	NAG	O5-C5-C6-O6
6	C	901	NAG	C4-C5-C6-O6
6	D	905	NAG	C4-C5-C6-O6
6	A	901	NAG	O5-C5-C6-O6
6	C	901	NAG	O5-C5-C6-O6

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	D	901	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 then 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.

Ligand NAG D 902

Bond lengths

Bond angles

Torsions

Rings

Ligand NAG A 901

Bond lengths

Bond angles

Torsions

Rings

Ligand NAG D 905

Bond lengths

Bond angles

Torsions

Rings

Ligand NAG D 901

Bond lengths

Bond angles

Torsions

Rings

Ligand NAG D 903

Bond lengths

Bond angles

Torsions

Rings

Ligand NAG B 901

Bond lengths

Bond angles

Torsions

Rings

Ligand NAG D 904

Bond lengths

Bond angles

Torsions

Rings

Ligand NAG B 904

Bond lengths

Bond angles

Torsions

Rings

Ligand NAG B 902

Bond lengths

Bond angles

Torsions

Rings

Ligand NAG C 901

Bond lengths

Bond angles

Torsions

Rings

Ligand NAG B 903

Bond lengths

Bond angles

Torsions

Rings

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6   Map visualisation   (i)

This section contains visualisations of the EMDB entry EMD-36337. These allow visual inspection of the internal detail of the map and identification of artifacts.

Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1   Orthogonal projections   (i)

6.1.1   Primary map
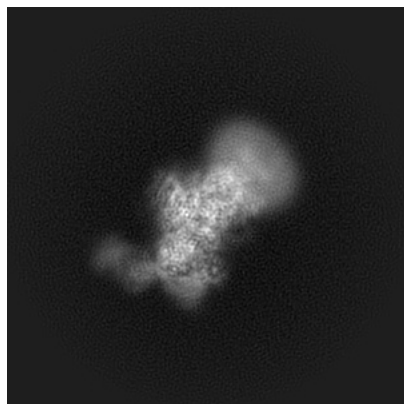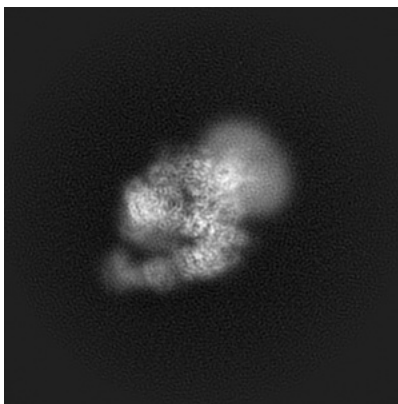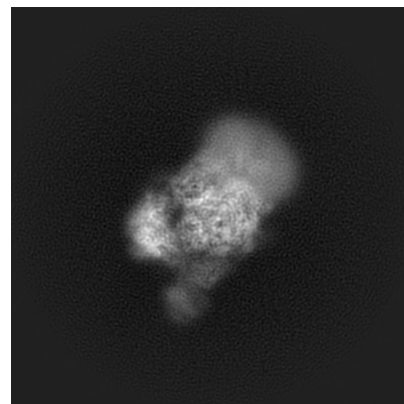
X   Y   Z

6.1.2   Raw map

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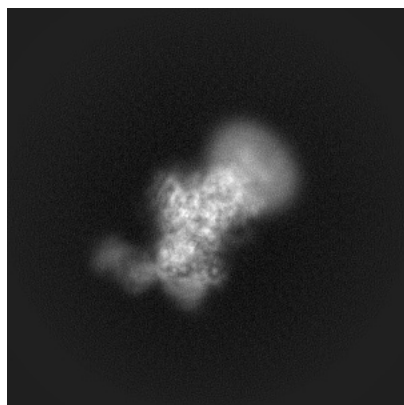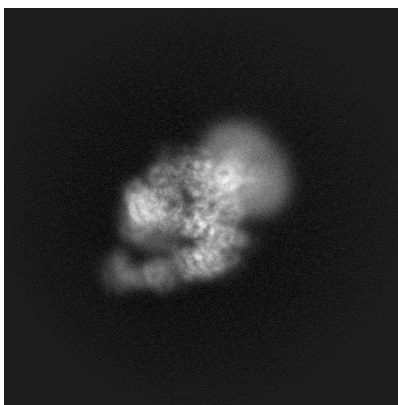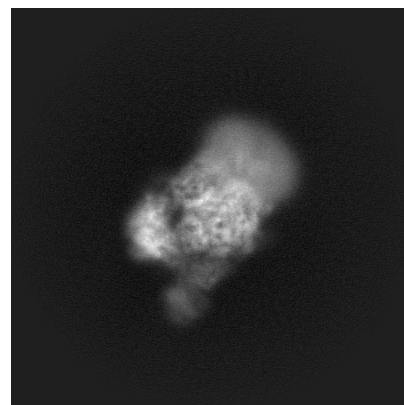
The images above show the map projected in three orthogonal directions.

6.2 Central slices ⓘ
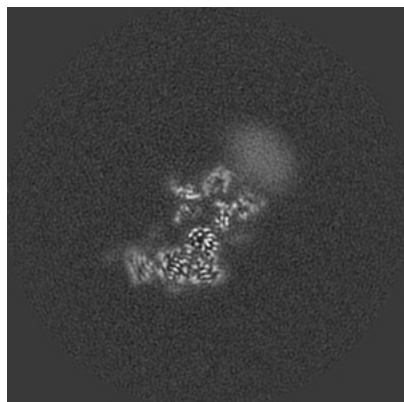
6.2.1 Primary map
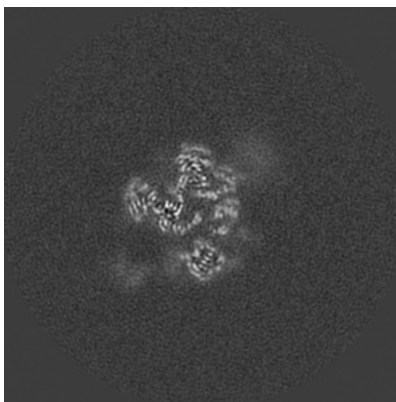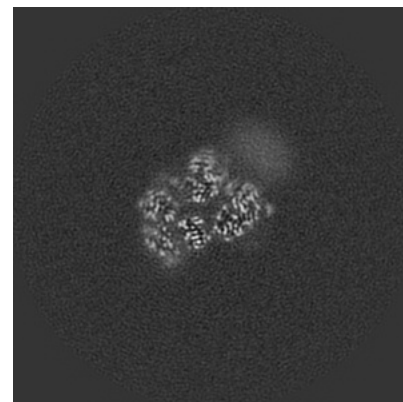
| X Index: 180 | Y Index: 180 | Z Index: 180 |

6.2.2 Raw map
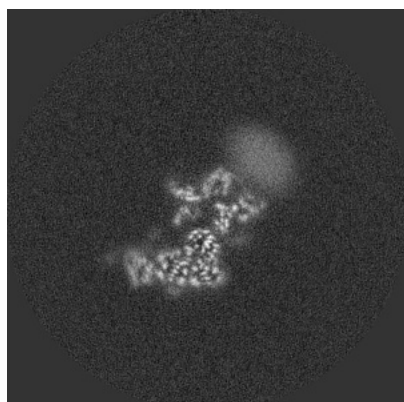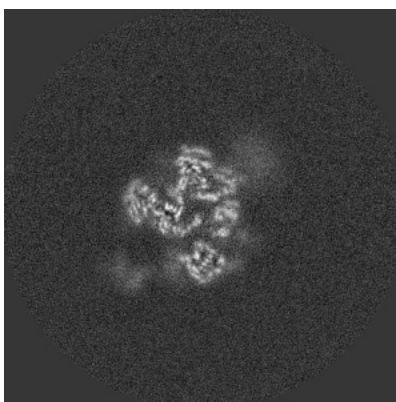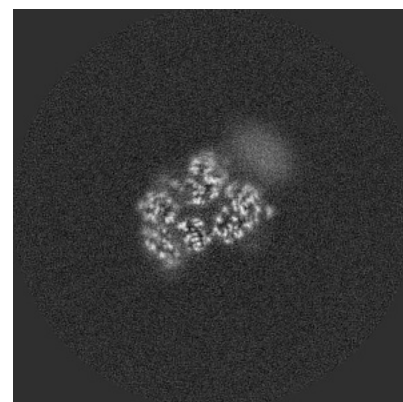
| X Index: 180 | Y Index: 180 | Z Index: 180 |

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

6.3 Largest variance slices ⓘ

6.3.1 Primary map
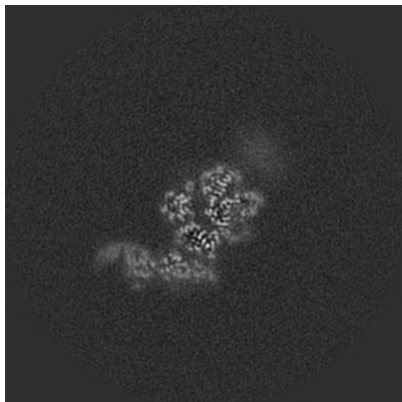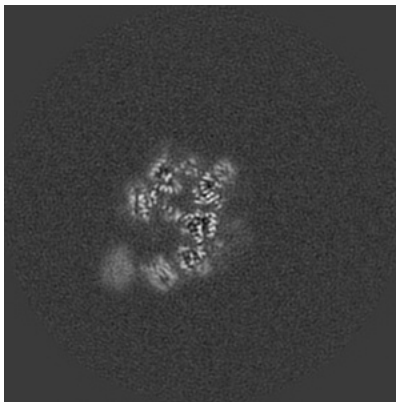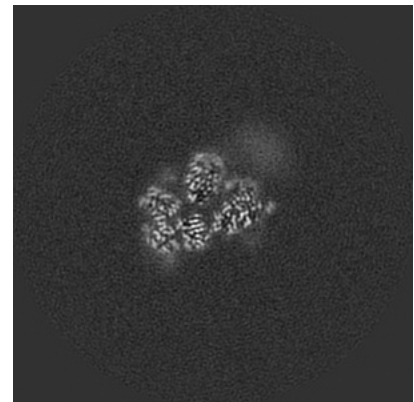
| X Index: 171 | Y Index: 159 | Z Index: 177 |

6.3.2 Raw map
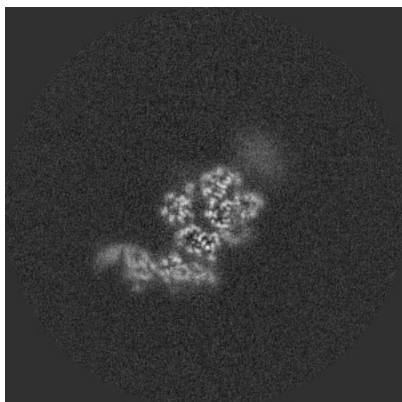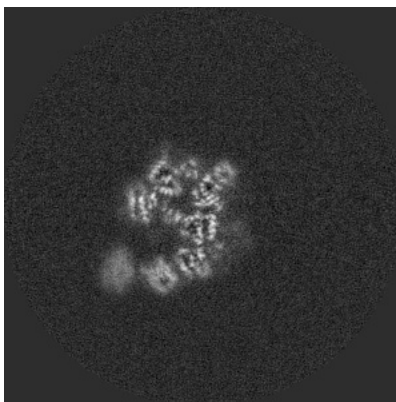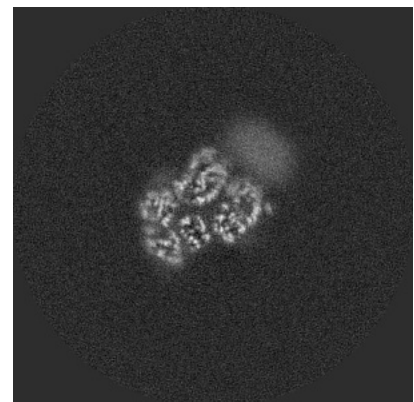
| X Index: 171 | Y Index: 159 | Z Index: 183 |

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

6.4 Orthogonal standard-deviation projections (False-color) ⓘ

6.4.1 Primary map

| X | Y | Z |

6.4.2 Raw map

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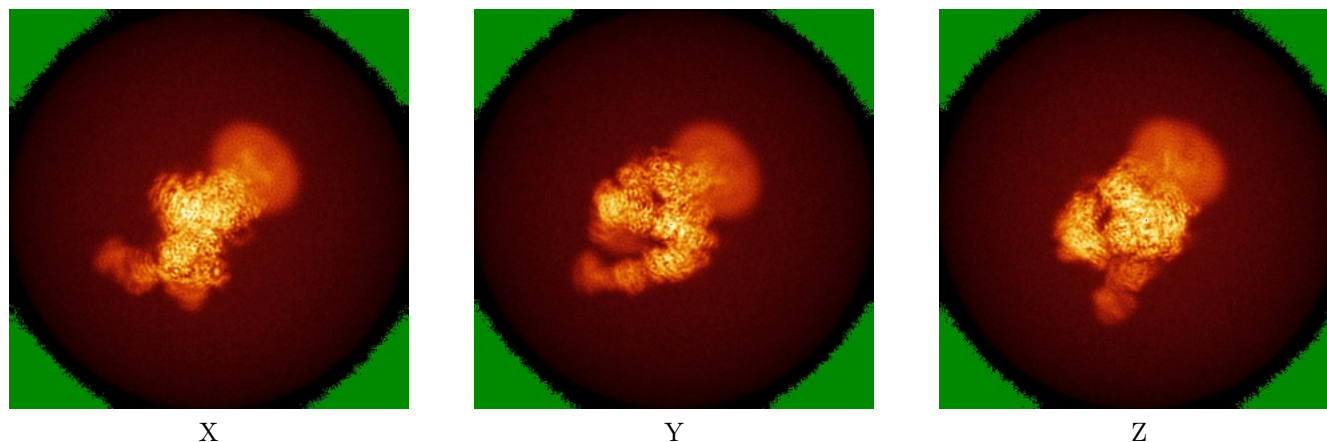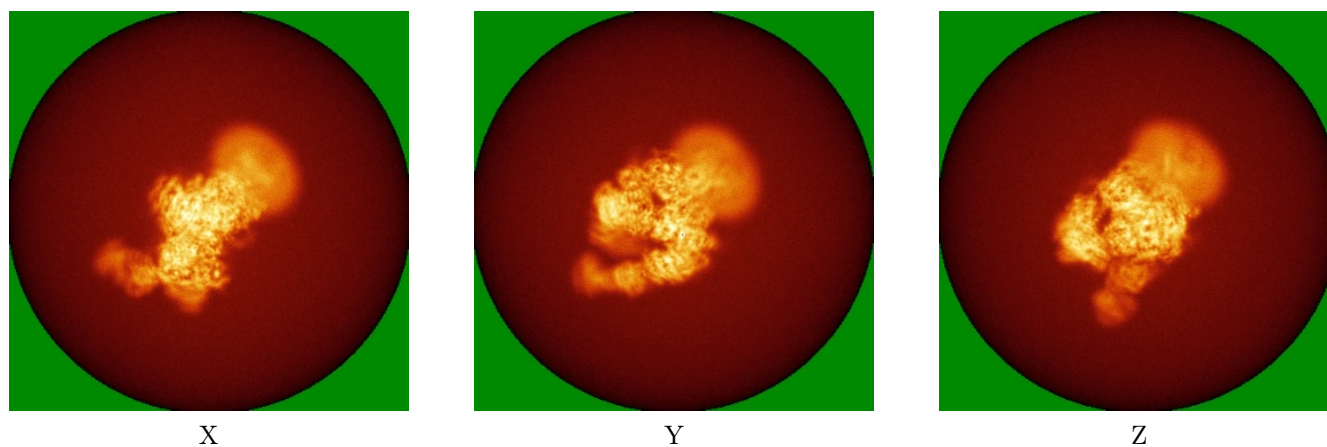
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5　Orthogonal surface views ⓘ

6.5.1　Primary map

X　　　　　　　　　　　　　　Y　　　　　　　　　　　　　　Z
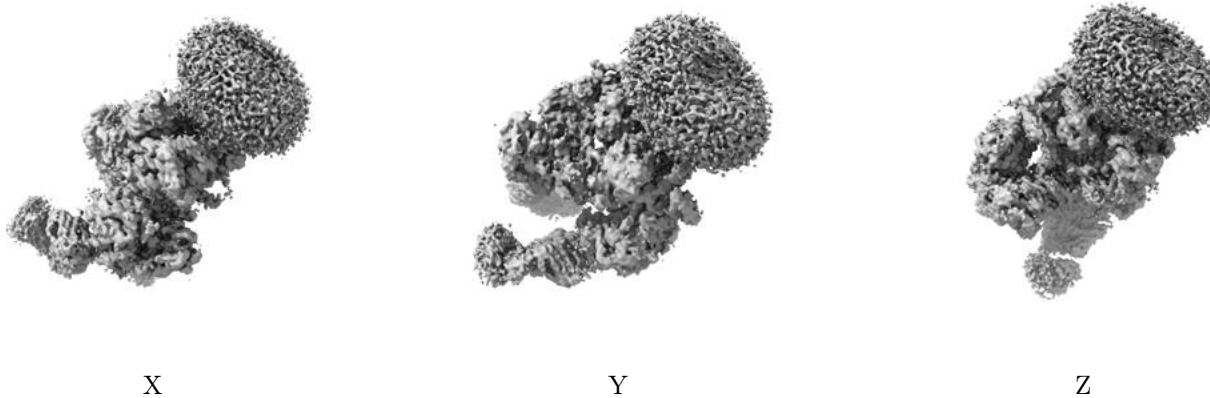
The images above show the 3D surface view of the map at the recommended contour level 0.014. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2　Raw map

X　　　　　　　　　　　　　　Y　　　　　　　　　　　　　　Z
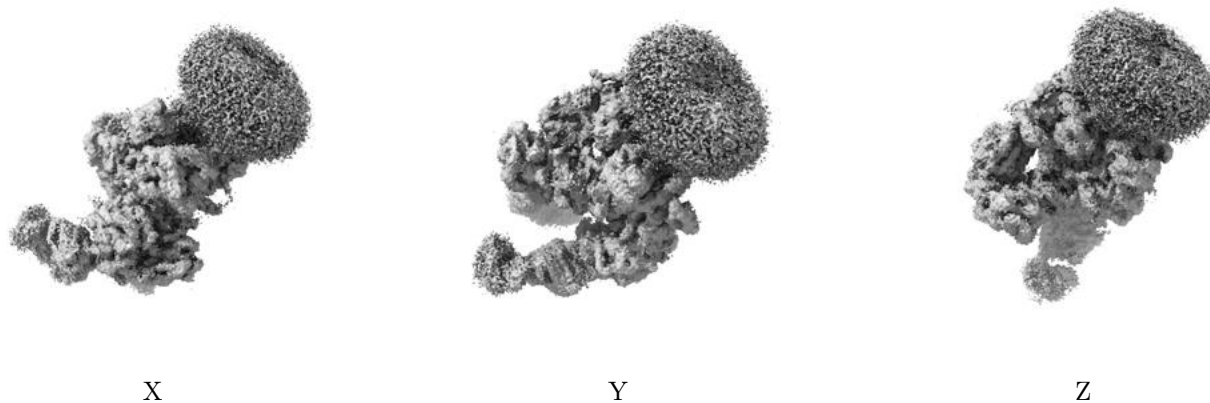
These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

6.6　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)
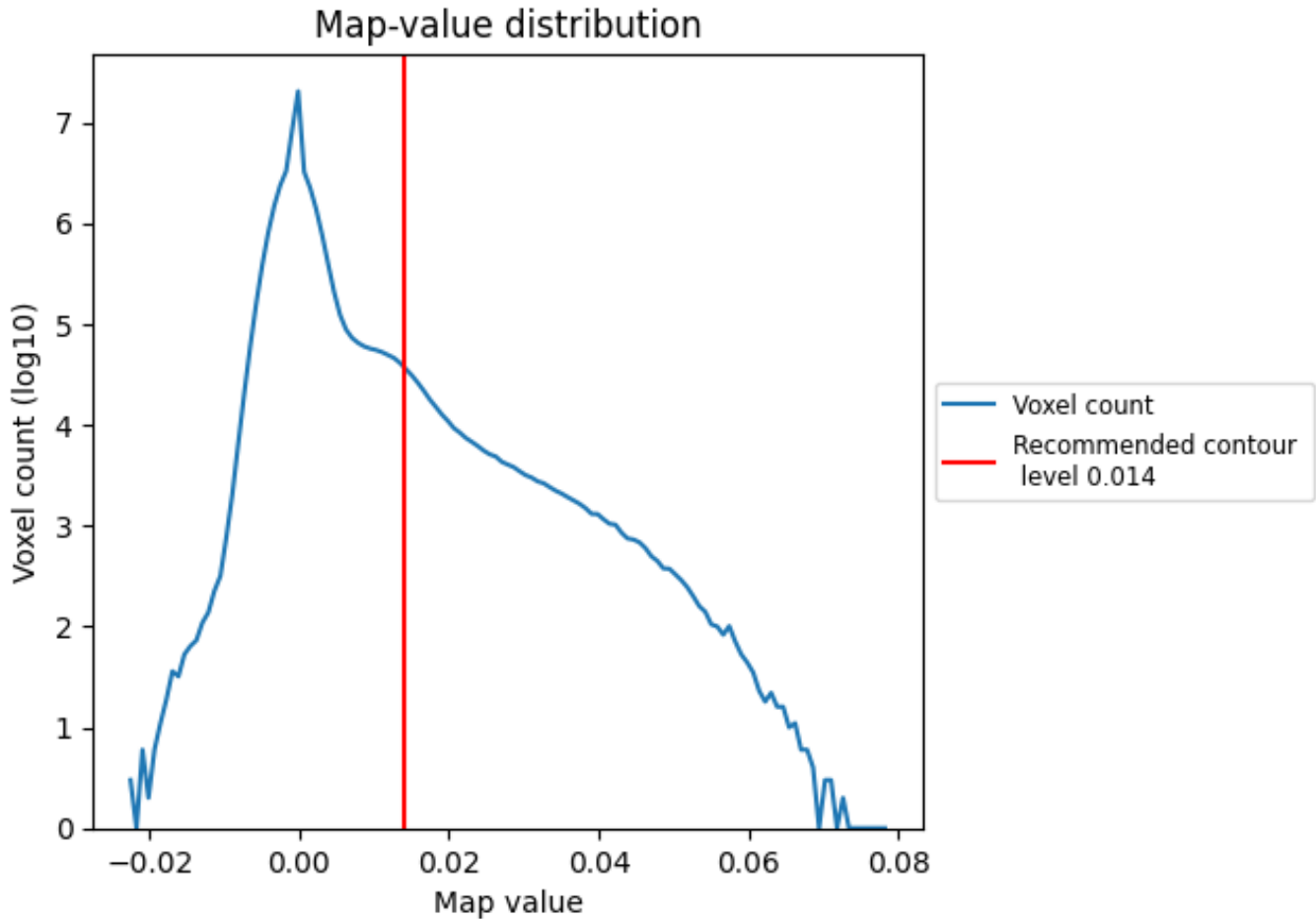
The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

7.2　Volume estimate ⓘ
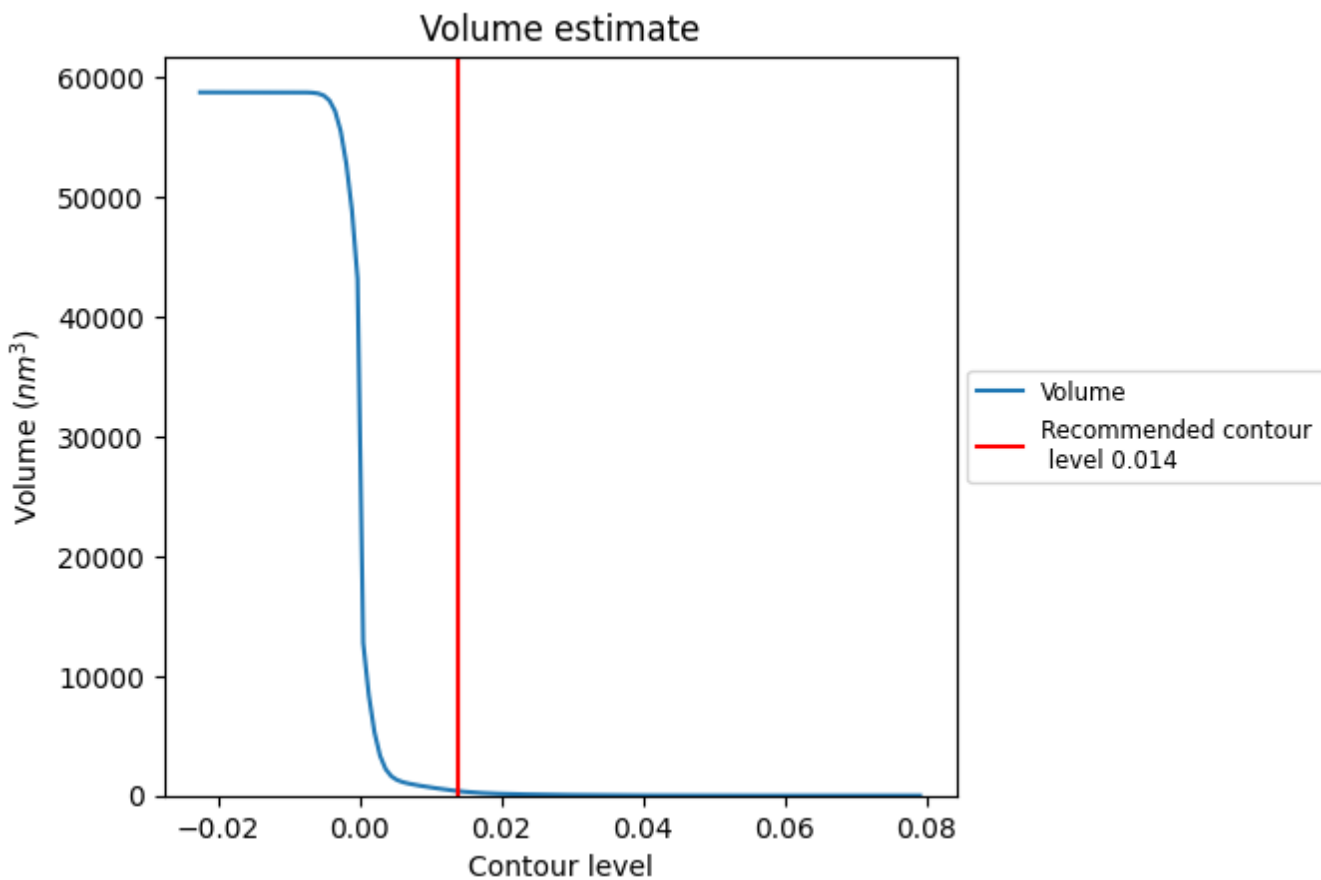
The volume at the recommended contour level is 368 nm^3; this corresponds to an approximate mass of 333 kDa.

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)
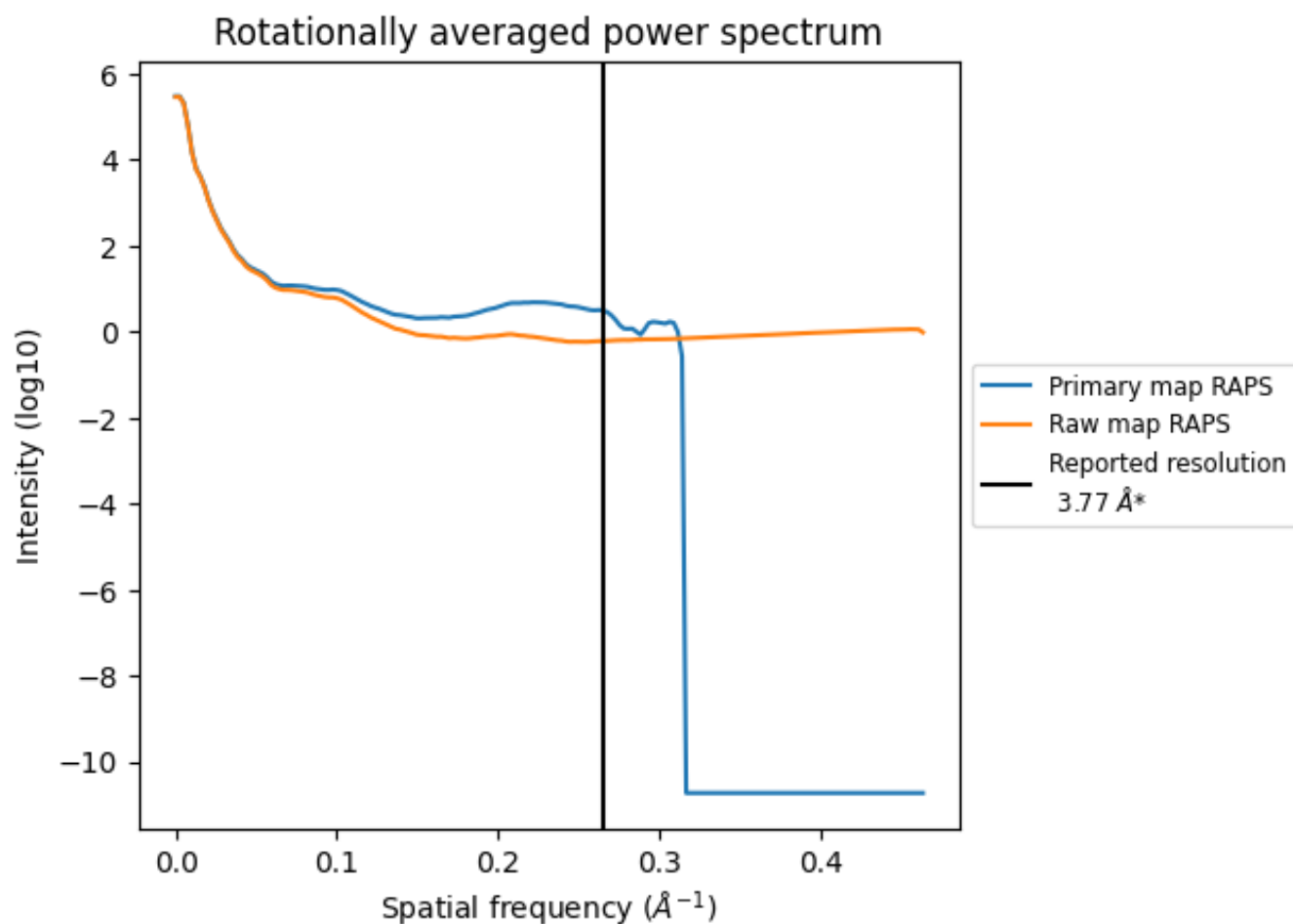
*Reported resolution corresponds to spatial frequency of 0.265 Å^{-1}

8 Fourier-Shell correlation ⓘ

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 ⓘ
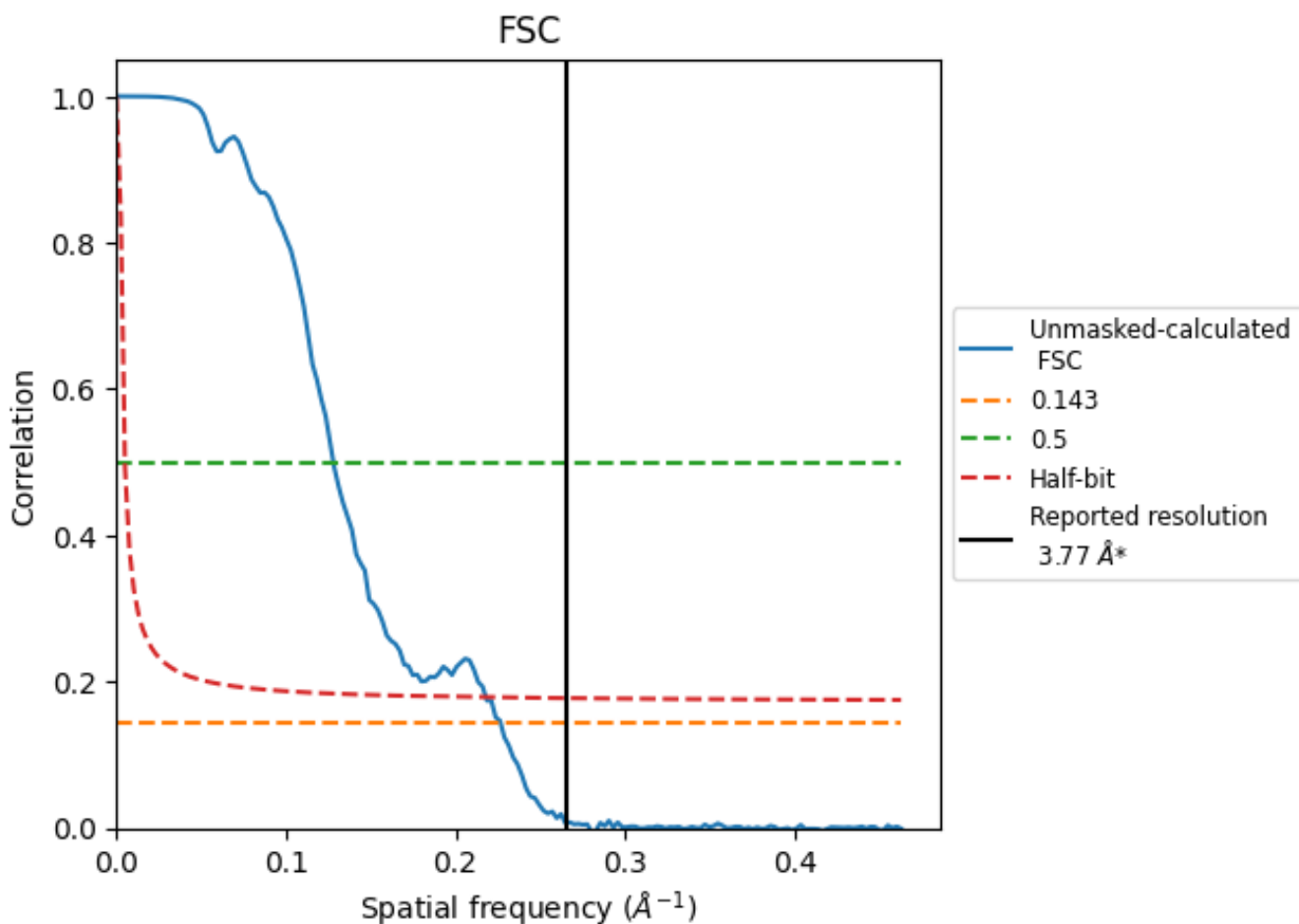
*Reported resolution corresponds to spatial frequency of 0.265 Å^{-1}

8.2 Resolution estimates (i)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.77	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.41	7.81	4.59

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.41 differs from the reported value 3.77 by more than 10 %

9 Map-model fit (i)

This section contains information regarding the fit between EMDB map EMD-36337 and PDB model 8JJ1. Per-residue inclusion information can be found in section 3 on page 7.

9.1 Map-model overlay (i)

X	Y	Z
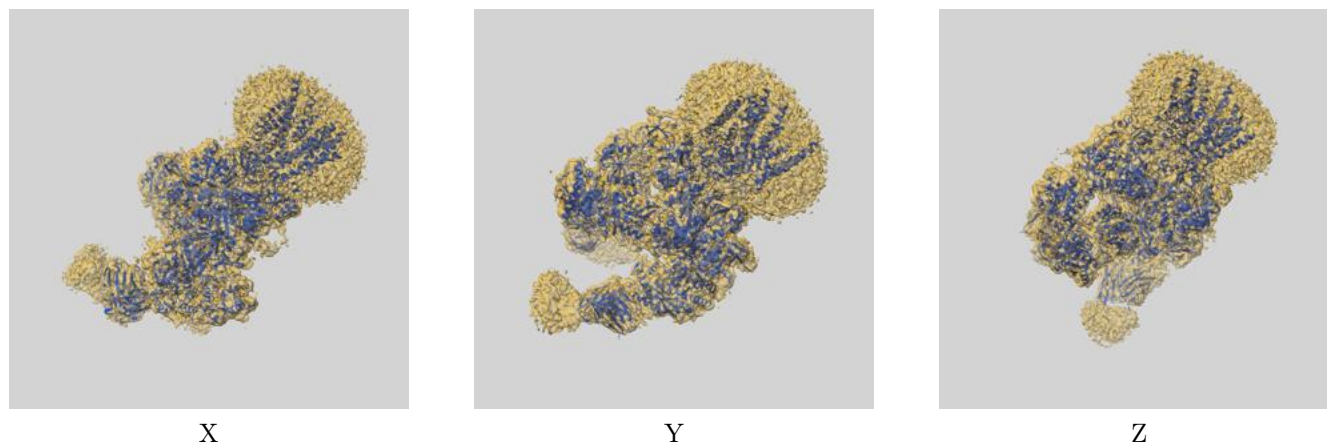
The images above show the 3D surface view of the map at the recommended contour level 0.014 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model ⓘ

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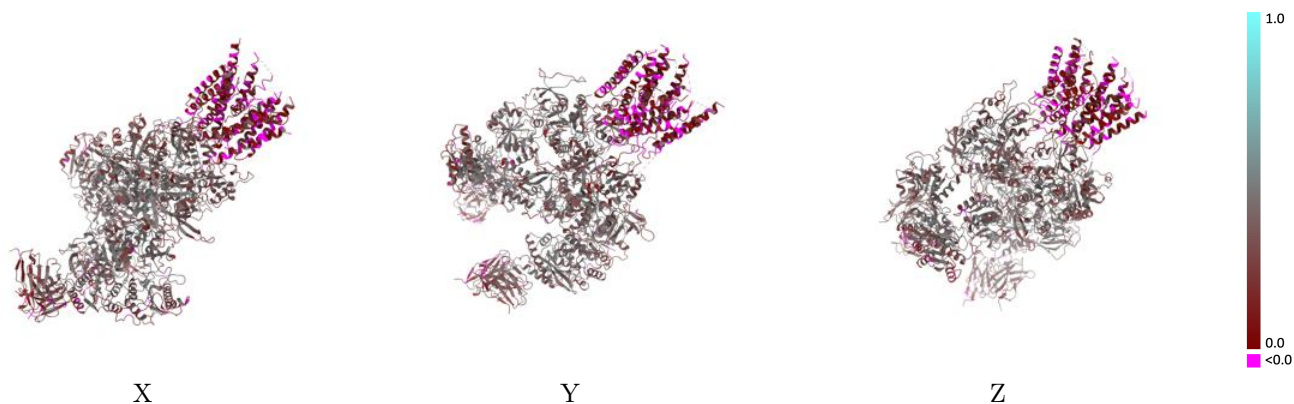
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

X   Y   Z
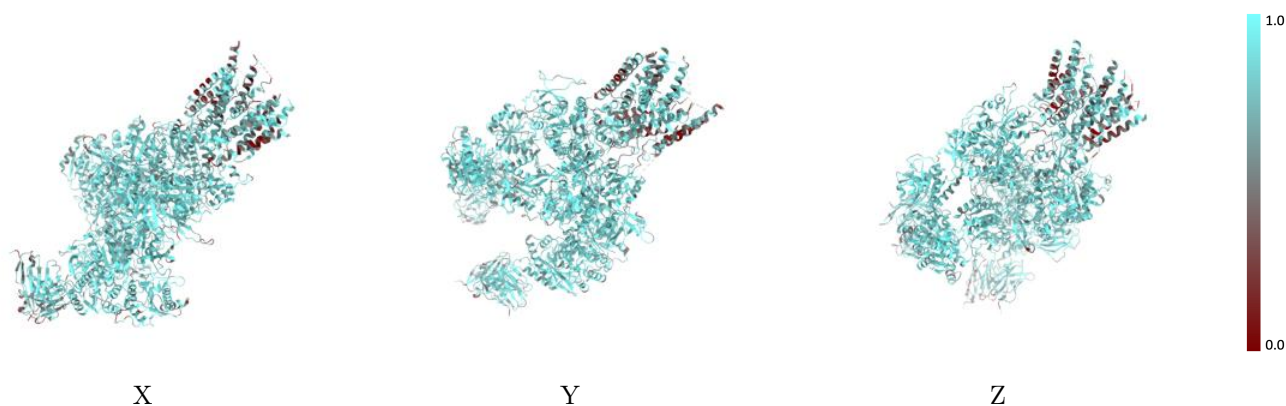
The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.014).

9.4   Atom inclusion ⓘ
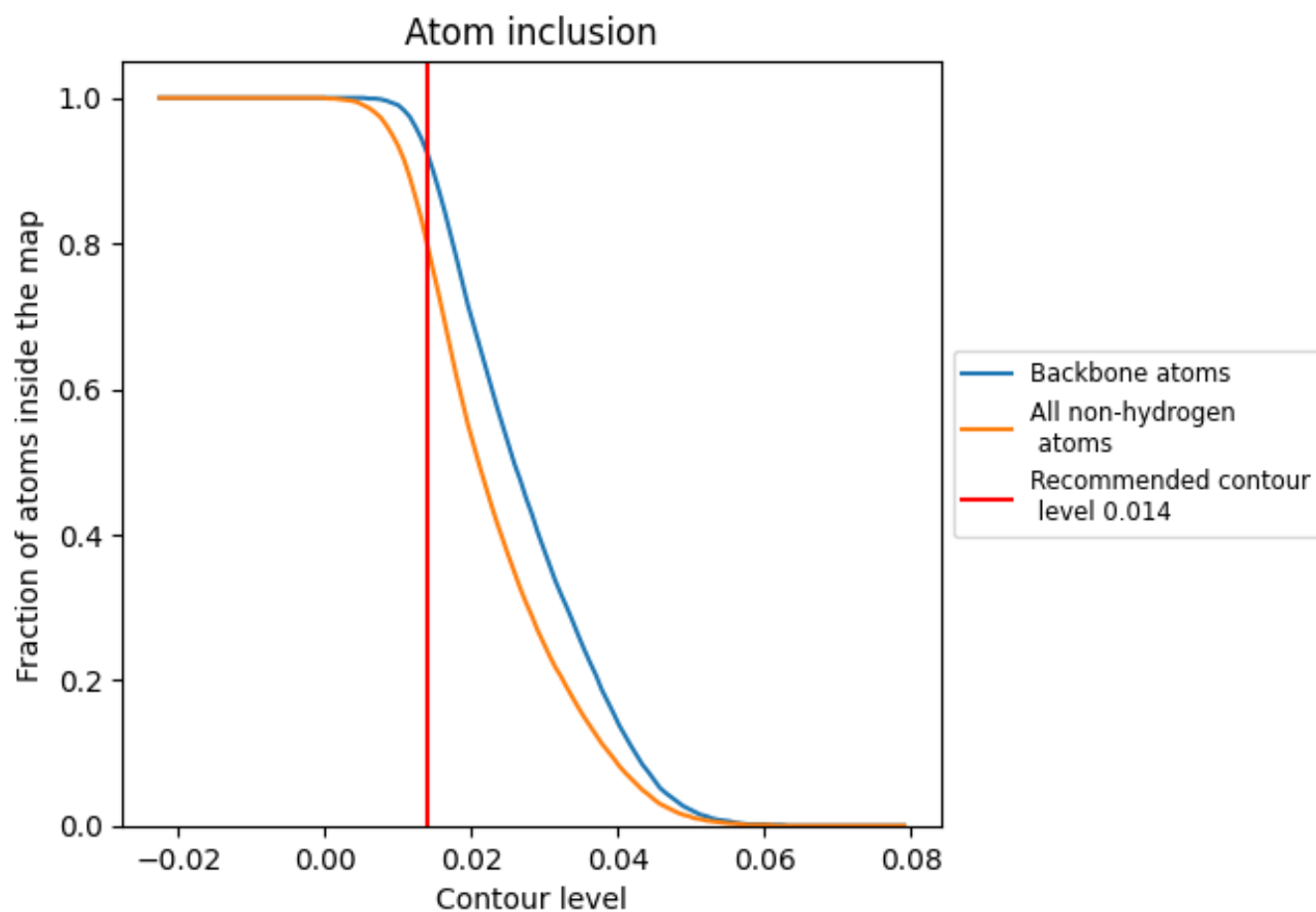
At the recommended contour level, 92% of all backbone atoms, 80% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary (i)

The table lists the average atom inclusion at the recommended contour level (0.014) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7980	0.3140
A	0.7830	0.3120
B	0.8180	0.3270
C	0.8000	0.3180
D	0.8250	0.3340
E	0.7970	0.2800
F	0.7460	0.2150
G	0.6670	0.2330
H	0.7440	0.2700
I	0.8930	0.4800

1.0

0.0
<0.0