Integrative Structure Validation Report

October 09, 2025 - 04:38 PM PDT

The following software was used in the production of this report:

IHMValidation Version 3.0
Python-IHM Version 2.5
MolProbity Version 4.5.2
EMDB validation analysis Version 0.0.1.dev127
ChimeraX Version 1.9
Chimera Version 1.19
MapQ Version 1.8.1

PDB ID	9A0I | pdb_00009a0i
PDB-Dev ID	PDBDEV_00000054
Structure Title	Structural model of UDP-glucose:glycoprotein glucosyl-transferase bound to Fab
Structure Authors	Modenutti CP; Blanco Capurro JI; Ibba R; Alonzi DS; Song MN; Vasiljevic S; Kumar A; Chandran AV; Tax G; Marti L; Hill JC; Lia A; Hensen M; Waksman T; Rushton J; Rubichi S; Santino A; Marti MA; Zitzmann N; Roversi P
Deposited on	2020-07-10

This is a PDB-IHM Structure Validation Report.

We welcome your comments at helpdesk@pdb-ihm.org

A user guide is available at https://pdb-ihm.org/validation_help.html with specific help available everywhere you see the ? symbol.

List of references used to build this report is available here.

1. Overview

1.1. Summary

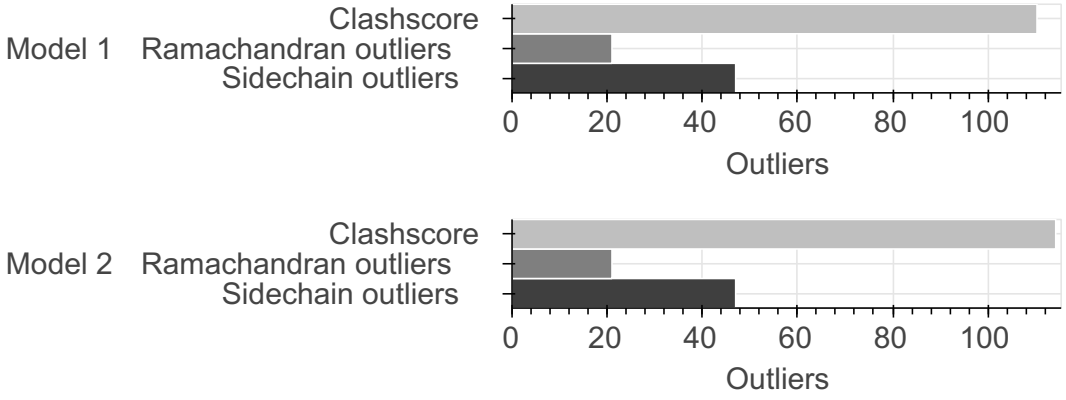
This entry consists of 2 model(s). A total of 7 dataset(s) were used to build this entry.

Name	Type	Count
3DEM volume	Experimental data	1
Other	Experimental data	2
Experimental model	Starting model	4

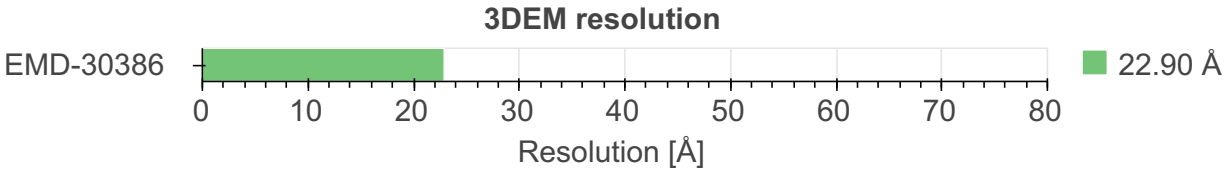
1.2. Overall quality

This validation report contains model quality assessments for all structures, data quality and fit to model assessments for SAS and crosslinking-MS datasets. Data quality and fit to model assessments for other datasets and model uncertainty are under development. Number of plots is limited to 256.

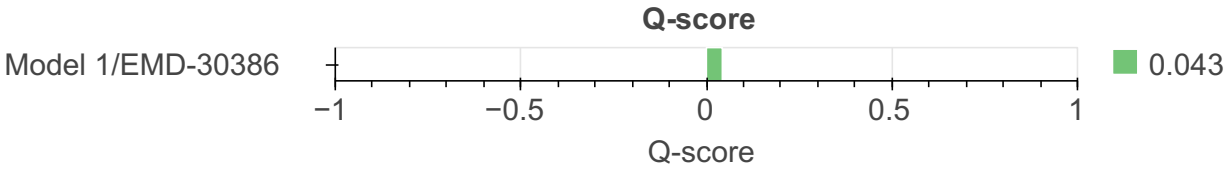
Model Quality: MolProbity Analysis



Data Quality



Fit to Data Used for Modeling



2. Model Details

2.1. Ensemble information

This entry consists of 0 distinct ensemble(s).

2.2. Representation

This entry has 1 representation(s).

ID	Model(s)	Entity ID	Molecule name	Chain(s) [auth]	Total residues	Rigid segments	Flexible segments	Model coverage/ Starting model coverage (%)	Scale
1	1-2	1	TdUGGT	A	1368	1-129, 130-137, 138-222, 223-342, 343-354, 355-623, 624-633, 634-677, 678-681, 682-695, 696-699, 700-977, 978-1091, 1092-1368	-	100.00 / 100.00	Atomic
		2	Fab Heavy Chain	B [L]	214	1-214	-	100.00 / 100.00	Atomic
		3	Fab Light Chain	C [H]	214	1-214	-	100.00 / 100.00	Atomic

2.3. Datasets used for modeling

There are 7 unique datasets used to build the models in this entry.

ID	Dataset type	Database name	Data access code
1	3DEM volume	EMDB	EMD-30386
2	Other	Not available	10.1038/s41598-017-12283-w
3	Experimental model	PDB	pdb_00005y7o
4	Experimental model	PDB	pdb_00005mu1
5	Experimental model	PDB	pdb_00005h18
6	Experimental model	PDB	pdb_00001fgn
Not available	Other	Not available	Not available

2.4. Methodology and software

This entry is a result of 1 distinct protocol(s).

Step number	Protocol ID	Method name	Method type	Method description	Number of computed models	Multi state modeling	Multi scale modeling
1	1	Fitting the TdUGGT and Fab models in the negative stain EM map	Not available	Not available	Not available	False	False

There are 3 software packages reported in this entry.

ID	Software name	Software version	Software classification	Software location
1	Coot	Not available	model building	https://www2.mrc-lmb.cam.ac.uk/personal/pemsley/coot/
2	Modeller	Not available	model building	https://salilab.org/modeller/
3	Chimera	Not available	visualization	https://www.cgl.ucsf.edu/chimera/

3. Data quality

3.3. 3DEM

This section describes quality of the 3DEM datasets

EMD-30386

3.3.1. Experimental information

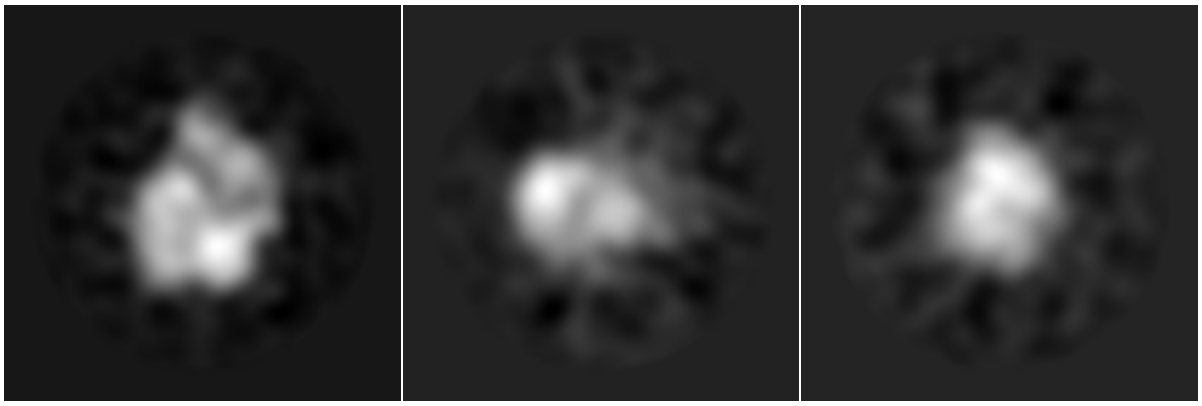
EM reconstruction method:	SINGLE PARTICLE
Resolution:	22.90 Å
Recommended level:	0.043
Estimated volume:	217.51 nm³
Specimen preparation:	Preparation ID 1 Staining: NEGATIVE; Material: uranyl acetate
Map-only validation report:	wwPDB validation report

3.3.2. Map visualisation

This section contains visualisations of the EMDB entry EMD-30386. 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.

3.3.2.1. Orthogonal projections

Primary map

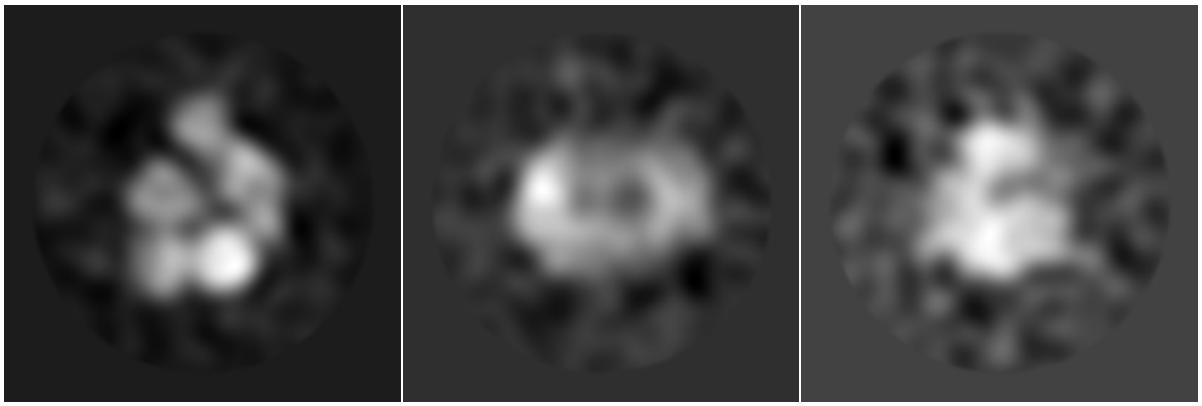


X **Y** **Z**

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

3.3.2.2. Central slices

Primary map

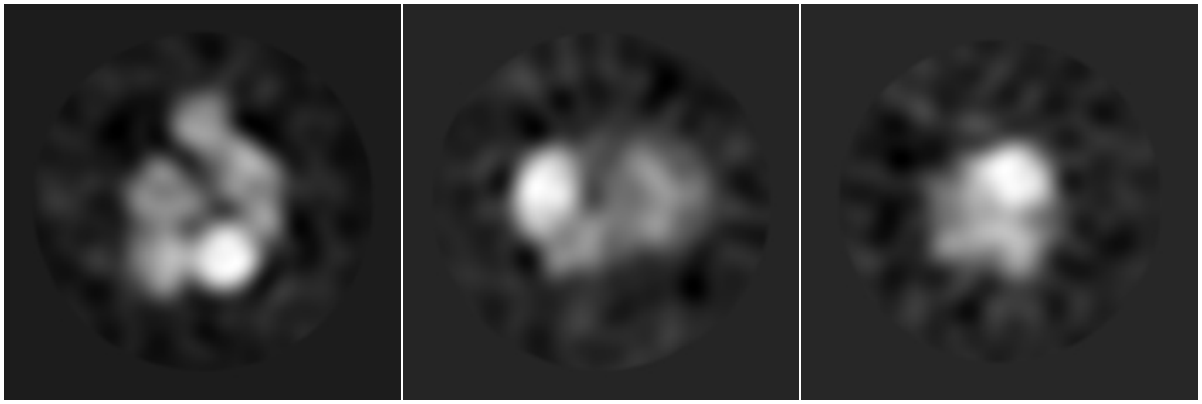


X Index: 140 **Y Index: 140** **Z Index: 140**

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

3.3.2.3. Largest variance slices

Primary map

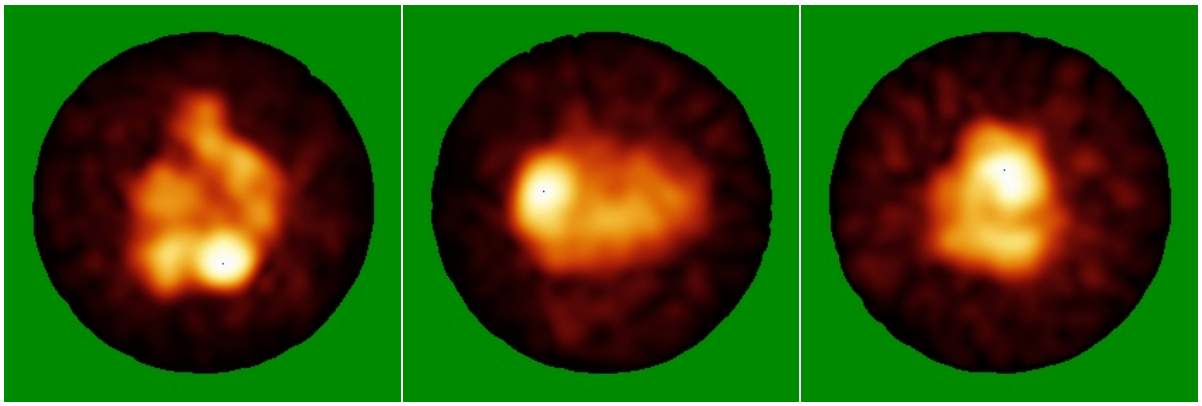


X Index: 144 **Y Index: 151** **Z Index: 102**

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

3.3.2.4 Orthogonal standard-deviation projections (false-color)

Primary map

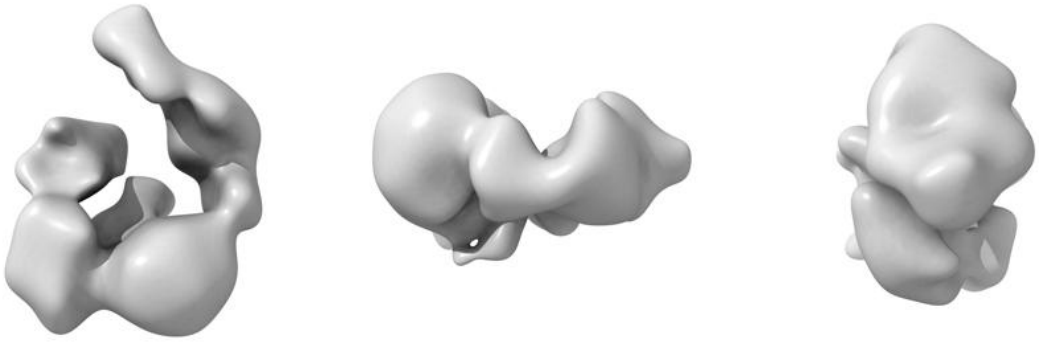


X **Y** **Z**

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.

3.3.2.5. Orthogonal surface views

Primary map



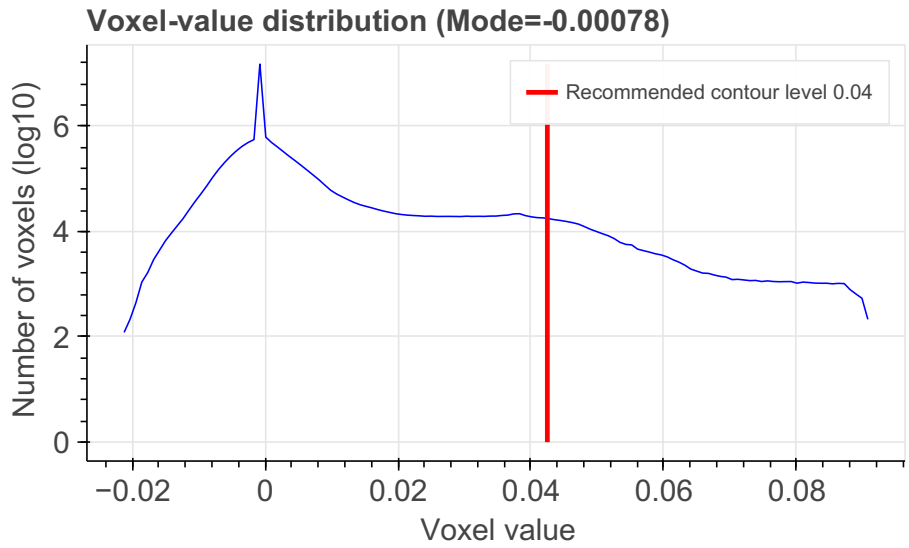
X **Y** **Z**

The images above show the 3D surface view of the map at the recommended contour level 0.043 . These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

3.3.3. Map analysis

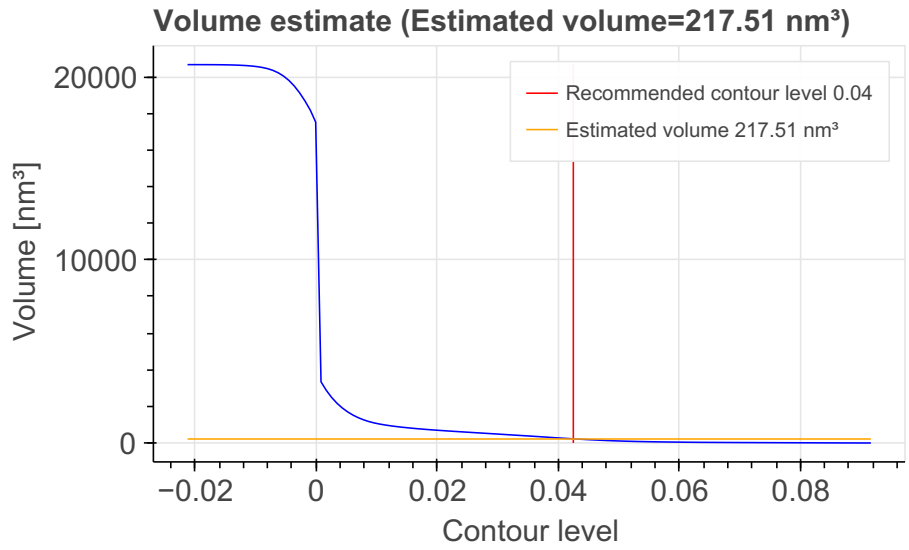
This section contains the results of statistical analysis of the map.

3.3.3.1. Map-value distribution



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.

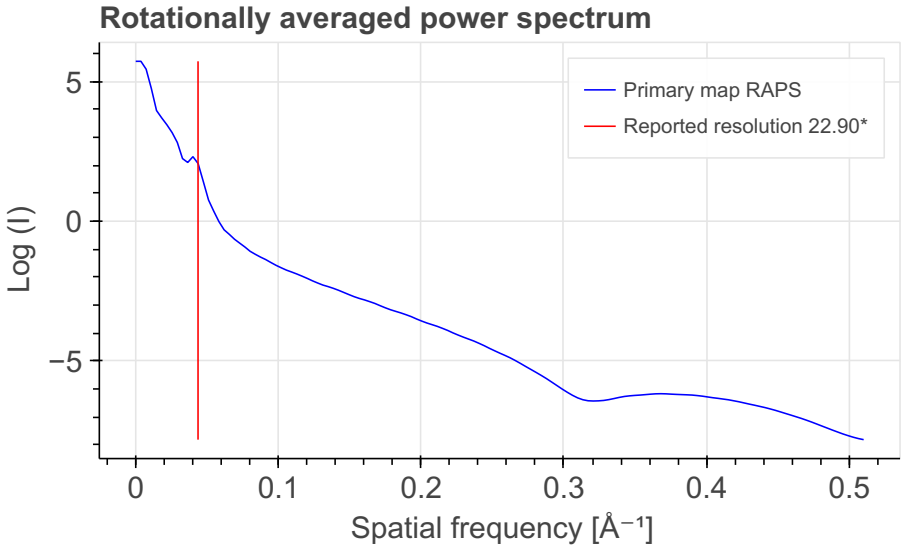
3.3.3.2. Volume estimate



The volume at the recommended contour level is 217.51 nm³.

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.

3.3.3.3. Rotationally averaged power spectrum



*Reported resolution corresponds to spatial frequency of 0.044 Å⁻¹

3.3.4. Fourier-Shell correlation

3.3.4.2. Resolution estimates

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	22.90	-	-

Author-provided FSC curve is not available.

4. Model quality

For models with atomic structures, MolProbity analysis is performed. For models with coarse-grained or multi-scale structures, excluded volume analysis is performed.

4.1b. MolProbity Analysis

Excluded volume satisfaction for the models in the entry are listed below. The Analysed column shows the number of particle-partice or particle-atom pairs for which excluded volume was analysed.

Standard geometry: bond outliers

There are 22 bond length outliers in this entry (0.08% of 26402 assessed bonds). A summary is provided below.

Chain	Res	Type	Atoms	|Z|	Observed (Å)	Ideal (Å)	Model ID (Worst)	Models (Total)
A	629	SER	CA-C	5.34	1.41	1.52	1	2
A	950	GLU	N-CA	4.88	1.37	1.46	1	2
A	216	ARG	CA-C	4.86	1.42	1.52	2	2

Chain	Res	Type	Atoms	|Z|	Observed (Å)	Ideal (Å)	Model ID (Worst)	Models (Total)
A	638	LEU	N-CA	4.60	1.37	1.46	1	2
B	83	UNK	CA-CB	4.58	1.62	1.53	1	2
A	628	ILE	CA-C	4.49	1.43	1.52	1	2
A	612	ASN	CA-C	4.43	1.43	1.52	1	2
A	216	ARG	N-CA	4.40	1.37	1.46	2	2
A	1133	LEU	C-N	4.28	1.39	1.33	1	2
A	928	LEU	C-N	4.20	1.27	1.34	1	2
A	84	ARG	NE-CZ	4.11	1.37	1.33	1	2

Standard geometry: angle outliers

There are 628 bond angle outliers in this entry (1.74% of 36006 assessed bonds). A summary is provided below. The output is limited to 100 rows.

Chain	Res	Type	Atoms	|Z|	Observed (Å)	Ideal (Å)	Model ID (Worst)	Models (Total)
A	637	SER	C-N-CA	21.71	82.62	121.70	2	2
A	1180	PHE	CA-CB-CG	11.38	102.42	113.80	1	2
A	912	PHE	CA-CB-CG	11.13	102.67	113.80	1	2
A	979	LEU	C-N-CA	10.92	102.04	121.70	2	2
A	1233	PHE	CA-CB-CG	10.92	102.88	113.80	1	2
A	1068	PHE	CA-CB-CG	10.81	102.99	113.80	1	2
A	612	ASN	CA-CB-CG	10.02	102.58	112.60	2	2
A	646	PHE	CA-CB-CG	9.95	103.85	113.80	1	2
A	216	ARG	C-N-CA	9.82	104.03	121.70	1	2
A	1132	PHE	CA-CB-CG	9.62	104.18	113.80	2	2
A	204	PHE	CA-CB-CG	8.86	104.94	113.80	2	2
A	812	THR	C-N-CA	8.75	137.45	121.70	2	2
A	950	GLU	N-CA-CB	8.73	95.65	110.50	1	2
A	1134	SER	CA-C-N	8.67	129.90	116.90	1	2
A	223	ASP	C-N-CA	8.08	107.15	121.70	1	2
C	56	UNK	N-CA-C	8.03	134.83	110.74	1	2
A	821	PHE	CA-CB-CG	7.76	106.04	113.80	2	2
A	1133	LEU	C-N-CA	7.71	135.57	121.70	1	2
A	595	THR	C-N-CA	7.62	107.98	121.70	2	2
A	12	PHE	CA-CB-CG	7.59	106.21	113.80	1	2
A	699	ALA	C-CA-CB	7.55	99.18	110.50	1	2
A	432	PHE	CA-CB-CG	7.36	106.44	113.80	1	2

Chain	Res	Type	Atoms	|Z|	Observed (Å)	Ideal (Å)	Model ID (Worst)	Models (Total)
A	396	TYR	CA-CB-CG	7.33	100.70	113.90	1	2
A	170	PHE	CA-CB-CG	7.29	106.51	113.80	1	2
A	596	ARG	C-N-CA	7.00	134.31	121.70	2	2
A	260	PHE	CA-CB-CG	6.99	106.81	113.80	2	2
A	813	THR	C-N-CA	6.98	134.26	121.70	2	2
A	466	HIS	CA-CB-CG	6.98	106.82	113.80	2	2
A	1074	PHE	CA-CB-CG	6.95	106.85	113.80	1	2
A	223	ASP	CA-CB-CG	6.94	105.66	112.60	2	2
A	832	ILE	C-N-CA	6.89	109.30	121.70	2	2
A	1148	TYR	CA-CB-CG	6.83	101.61	113.90	1	2
A	1137	PHE	CA-CB-CG	6.80	107.00	113.80	1	2
A	259	ASP	CA-CB-CG	6.80	105.80	112.60	2	2
A	1185	PHE	CA-CB-CG	6.74	107.06	113.80	1	2
A	1008	PHE	CA-CB-CG	6.64	107.16	113.80	2	2
A	250	PHE	CA-CB-CG	6.63	107.17	113.80	1	2
A	381	TYR	CA-CB-CG	6.55	102.10	113.90	2	2
A	1194	PHE	CA-CB-CG	6.55	107.25	113.80	1	2
A	384	PHE	CA-CB-CG	6.54	107.26	113.80	1	2
A	950	GLU	C-CA-CB	6.45	122.36	110.10	1	2
A	200	PHE	CA-CB-CG	6.43	107.37	113.80	2	2
C	131	UNK	N-CA-C	6.35	91.69	110.74	1	2
A	82	ALA	C-N-CA	6.32	133.08	121.70	2	2
A	898	ILE	C-N-CA	6.27	132.98	121.70	2	2
A	689	TYR	CA-CB-CG	6.26	102.64	113.90	2	2
A	1126	PHE	CA-CB-CG	6.25	107.55	113.80	2	2
A	901	PHE	CA-CB-CG	6.23	107.57	113.80	1	2
A	326	PHE	CA-CB-CG	6.19	107.61	113.80	1	2
A	519	GLU	CB-CG-CD	6.13	102.18	112.60	1	2
A	276	PHE	CA-CB-CG	6.11	107.69	113.80	2	2
A	1140	PHE	CA-CB-CG	6.11	107.69	113.80	1	2
C	136	UNK	N-CA-C	6.10	92.44	110.74	1	2
A	628	ILE	N-CA-C	6.08	93.98	111.00	2	2
A	475	PHE	CA-CB-CG	6.05	107.75	113.80	1	2
A	699	ALA	N-CA-CB	6.01	119.42	110.40	1	2
A	1053	GLN	CA-C-N	6.00	125.90	116.90	2	2

Chain	Res	Type	Atoms	|Z|	Observed (Å)	Ideal (Å)	Model ID (Worst)	Models (Total)
A	1052	TYR	CA-CB-CG	5.99	103.12	113.90	2	2
A	94	TYR	C-N-CA	5.98	110.94	121.70	2	2
A	441	PHE	CA-CB-CG	5.95	107.85	113.80	1	2
A	647	ASP	CA-CB-CG	5.92	106.68	112.60	1	2
B	140	UNK	C-N-CA	5.89	132.30	121.70	2	2
A	533	ASP	CA-CB-CG	5.86	106.74	112.60	1	2
A	245	ASP	CA-CB-CG	5.85	106.75	112.60	1	2
A	420	ASP	CA-CB-CG	5.84	106.76	112.60	2	2
A	1119	HIS	CA-CB-CG	5.82	107.98	113.80	1	2
A	636	ASN	CA-CB-CG	5.81	106.79	112.60	2	2
A	738	GLY	N-CA-C	5.81	96.45	113.30	2	2
A	565	ASP	CA-CB-CG	5.80	106.80	112.60	2	2
C	153	UNK	N-CA-CB	5.80	100.64	110.50	2	2
A	604	ASP	CA-C-N	5.79	125.59	116.90	1	2
A	73	ASP	N-CA-CB	5.76	120.30	110.50	2	2
A	305	ARG	C-N-CA	5.73	132.02	121.70	1	2
A	801	PHE	CA-CB-CG	5.70	108.10	113.80	1	2
A	217	THR	O-C-N	5.68	113.92	123.00	1	2
A	217	THR	C-CA-CB	5.66	121.55	109.10	1	2
A	595	THR	N-CA-C	5.65	126.83	111.00	2	2
A	1270	ASP	CA-CB-CG	5.64	106.96	112.60	1	2
A	1065	LEU	C-N-CA	5.62	131.81	121.70	1	2
A	120	ASP	CA-CB-CG	5.62	106.98	112.60	1	2
A	446	LEU	C-N-CA	5.60	131.78	121.70	1	2
A	653	ASN	CA-CB-CG	5.60	107.00	112.60	1	2
A	88	PRO	C-CA-CB	5.60	120.74	110.10	1	2
A	1155	VAL	C-N-CA	5.59	131.76	121.70	1	2
A	629	SER	N-CA-C	5.53	95.52	111.00	2	2
A	258	GLN	C-N-CA	5.52	131.64	121.70	1	2
A	836	ASN	CA-CB-CG	5.48	107.12	112.60	1	2
A	64	ASP	CA-CB-CG	5.48	107.12	112.60	1	2
A	614	VAL	C-CA-CB	5.46	101.02	111.40	1	2
A	661	PHE	CA-CB-CG	5.45	108.35	113.80	1	2
A	361	ASP	CA-CB-CG	5.44	107.16	112.60	1	2
A	1093	ASP	CA-CB-CG	5.43	107.17	112.60	2	2

Chain	Res	Type	Atoms	|Z|	Observed (Å)	Ideal (Å)	Model ID (Worst)	Models (Total)
A	218	ASP	N-CA-CB	5.42	119.72	110.50	1	2
A	1020	PHE	CA-CB-CG	5.41	108.39	113.80	1	2
A	498	SER	C-N-CA	5.41	131.44	121.70	2	2
A	343	PRO	C-N-CA	5.39	112.00	121.70	2	2
A	886	PHE	CA-CB-CG	5.38	108.42	113.80	2	2
A	95	GLN	N-CA-CB	5.36	119.60	110.50	2	2
A	957	ASN	CA-CB-CG	5.35	107.25	112.60	1	2
A	283	ASN	CA-CB-CG	5.34	107.26	112.60	2	2

Too-close contacts

The following all-atom clashscore is based on a MolProbity analysis. All-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The table below contains clashscores for all atomic models in this entry.

Model ID	Clash score	Number of clashes
1	110.34	2664
2	114.27	2759

There are 5423 clashes. The table below contains the detailed list of all clashes based on a MolProbity analysis. Bad clashes are >= 0.4 Angstrom. The output is limited to 100 rows.

Atom 1	Atom 2	Clash(Å)	Model ID (Worst)	Models (Total)
A:430:GLN:CB	C:101:UNK:CB	1.57	2	1
A:435:ARG:HD3	C:31:UNK:CB	1.50	2	1
A:395:THR:HG23	C:27:UNK:CA	1.50	1	1
A:500:ARG:CB	B:29:UNK:HA	1.47	2	1
A:481:LYS:HE2	B:64:UNK:N	1.43	2	1
A:401:PRO:HD3	C:30:UNK:CB	1.40	1	1
A:435:ARG:CD	C:31:UNK:CB	1.40	2	1
A:430:GLN:HB3	C:101:UNK:CB	1.37	2	1
A:500:ARG:HB3	B:29:UNK:CA	1.35	2	1
A:481:LYS:CE	B:64:UNK:N	1.35	2	1
A:401:PRO:CA	C:30:UNK:O	1.35	1	1
A:385:PRO:HD2	C:57:UNK:CB	1.34	1	1
A:395:THR:CB	C:27:UNK:CB	1.34	1	1
A:430:GLN:NE2	C:101:UNK:C	1.34	2	1
A:476:GLN:O	B:53:UNK:CB	1.33	2	1
A:436:LEU:C	C:30:UNK:O	1.29	2	1
A:430:GLN:HE21	C:101:UNK:C	1.28	2	1

Atom 1	Atom 2	Clash(Å)	Model ID (Worst)	Models (Total)
A:434:LYS:O	C:32:UNK:C	1.26	2	1
A:403:VAL:HG22	C:55:UNK:CB	1.26	1	1
A:385:PRO:CD	C:57:UNK:CB	1.25	1	1
A:498:SER:C	B:30:UNK:CB	1.25	2	1
A:477:ARG:HD2	B:51:UNK:CB	1.24	2	1
A:435:ARG:O	C:30:UNK:C	1.23	2	1
A:384:PHE:CD1	C:55:UNK:CB	1.23	2	1
A:481:LYS:HE2	B:64:UNK:CA	1.23	2	1
A:368:VAL:HG13	A:525:THR:HG22	1.20	2	2
A:434:LYS:O	C:33:UNK:N	1.19	2	1
A:501:VAL:HA	B:92:UNK:O	1.16	2	1
A:430:GLN:NE2	C:102:UNK:N	1.16	2	1
A:476:GLN:HB2	B:50:UNK:CB	1.16	2	1
A:401:PRO:N	C:30:UNK:O	1.15	1	1
A:630:ALA:HB2	A:699:ALA:HB2	1.15	1	2
A:436:LEU:HB3	C:54:UNK:CB	1.15	2	1
A:401:PRO:HG3	C:30:UNK:CA	1.15	1	1
A:401:PRO:CD	C:30:UNK:CB	1.15	1	1
A:477:ARG:CD	B:51:UNK:CB	1.14	2	1
A:340:LEU:HD13	A:343:PRO:HG2	1.13	2	2
A:521:VAL:HA	A:524:LYS:HE3	1.13	2	2
A:435:ARG:CG	C:31:UNK:CB	1.13	2	1
A:393:GLN:HG2	C:77:UNK:N	1.12	1	1
A:431:THR:HA	C:100:UNK:HA	1.12	2	1
A:158:LEU:HD21	A:160:ILE:HD11	1.12	2	2
A:384:PHE:HD1	C:55:UNK:CB	1.12	2	1
A:877:LYS:HD2	A:908:PRO:HG2	1.11	2	2
A:473:LYS:HD3	B:31:UNK:C	1.11	2	1
A:437:ILE:N	C:31:UNK:HA	1.11	2	1
A:498:SER:O	B:30:UNK:CB	1.11	2	1
A:794:LYS:HA	A:794:LYS:HE3	1.11	1	2
A:217:THR:HG23	A:225:LYS:HA	1.11	2	2
A:401:PRO:HG3	C:30:UNK:HA	1.10	1	1
A:388:ILE:HG12	A:573:ILE:HD12	1.10	1	2
A:1117:MET:HA	A:1117:MET:HE2	1.10	1	2

Atom 1	Atom 2	Clash(Å)	Model ID (Worst)	Models (Total)
A:638:LEU:HB3	A:668:ILE:HG12	1.10	1	2
A:690:GLN:HG2	A:693:ARG:HD2	1.09	1	2
A:462:LEU:HD22	A:471:MET:HA	1.09	2	2
A:401:PRO:HA	C:30:UNK:O	1.09	1	1
A:350:SER:HB3	A:827:TYR:HA	1.09	1	2
A:353:GLU:HB3	A:355:GLN:HE22	1.09	2	2
A:99:THR:HG22	A:1002:THR:HG23	1.08	2	2
A:382:SER:CB	C:55:UNK:O	1.08	2	1
A:1134:SER:HB3	A:1137:PHE:HB2	1.08	1	2
A:69:ASN:HA	A:74:LEU:HD21	1.08	2	2
A:950:GLU:HG3	A:1133:LEU:HB2	1.08	2	2
A:732:GLN:HG3	A:733:LEU:HD22	1.08	2	2
A:436:LEU:O	C:30:UNK:O	1.08	2	1
A:869:VAL:HG23	A:870:PRO:HD3	1.08	1	2
A:1163:LEU:HD21	A:1179:LEU:HD23	1.07	2	2
A:72:ALA:HB1	A:320:ARG:HH21	1.07	2	2
A:529:ILE:HG23	A:534:LEU:HB2	1.07	2	2
A:622:LEU:HD21	A:626:LEU:HD11	1.07	1	2
A:434:LYS:HD2	C:32:UNK:CA	1.07	2	1
A:345:LEU:HD23	A:778:ARG:HA	1.07	2	2
A:1047:VAL:HG11	A:1073:LEU:HD23	1.07	2	2
A:622:LEU:HD13	A:733:LEU:HB2	1.06	1	2
A:434:LYS:HD2	C:32:UNK:CB	1.05	2	1
A:391:LEU:HD21	A:400:LEU:HD22	1.05	2	2
A:460:ARG:HG3	A:464:MET:HE3	1.05	2	2
A:279:GLU:HA	A:282:ALA:HB3	1.05	2	2
A:607:LYS:HE3	A:609:ARG:HG3	1.05	2	2
A:434:LYS:NZ	C:32:UNK:CB	1.05	2	1
A:613:LEU:HD13	A:802:ALA:HB1	1.04	2	2
A:893:LEU:HD13	A:897:PRO:HG3	1.04	1	2
A:858:ILE:HD13	A:885:ILE:HG23	1.04	2	2
A:600:ILE:HG23	A:770:LEU:HD13	1.03	2	2
A:748:LEU:HD12	A:774:GLU:HG2	1.03	1	2
A:662:ARG:HE	A:669:GLU:HG3	1.03	2	2
A:227:LEU:HD13	A:228:SER:H	1.03	2	2

Atom 1	Atom 2	Clash(Å)	Model ID (Worst)	Models (Total)
A:20:GLU:HB2	A:86:ALA:HB3	1.03	2	2
A:1114:VAL:HG21	A:1358:ILE:HD11	1.03	1	2
A:743:THR:HG23	A:755:PRO:HB3	1.02	2	2
A:501:VAL:HG13	B:92:UNK:CA	1.02	2	1
A:997:GLN:HB2	A:1034:LYS:HD2	1.02	2	2
A:382:SER:HB2	C:55:UNK:O	1.02	2	1
A:979:LEU:HD13	A:1065:LEU:HA	1.02	1	2
A:650:ALA:HA	A:653:ASN:HB2	1.02	2	2
A:647:ASP:HB2	A:721:SER:HA	1.01	2	2
A:814:SER:HA	A:826:LYS:HD2	1.01	2	2
A:494:GLU:HB3	B:67:UNK:CB	1.01	2	1
A:682:THR:HG23	A:722:LYS:HA	1.01	1	2
A:476:GLN:OE1	B:50:UNK:CB	1.01	2	1

Torsion angles: Protein backbone

In the following table, Ramachandran outliers are listed. The Analysed column shows the number of residues for which the backbone conformation was analysed.

Model ID	Analysed	Favored	Allowed	Outliers
1	1362	1257	84	21
2	1362	1257	84	21

There are 21 unique backbone outliers. Detailed list of outliers are tabulated below.

Chain	Res	Type	Models (Total)
A	47	ASP	2
A	107	THR	2
A	136	VAL	2
A	216	ARG	2
A	227	LEU	2
A	340	LEU	2
A	355	GLN	2
A	382	SER	2
A	400	LEU	2
A	594	LEU	2
A	725	ALA	2
A	776	SER	2
A	786	MET	2

Chain	Res	Type	Models (Total)
A	791	LEU	2
A	793	HIS	2
A	848	ASP	2
A	898	ILE	2
A	1053	GLN	2
A	1059	GLU	2
A	1214	GLU	2
A	1331	CYS	2

Torsion angles : Protein sidechains

In the following table, sidechain rotameric outliers are listed. The Analysed column shows the number of residues for which the sidechain conformation was analysed.

Model ID	Analysed	Favored	Allowed	Outliers
1	1179	1038	94	47
2	1179	1037	95	47

There are 47 unique sidechain outliers. Detailed list of outliers are tabulated below.

Chain	Res	Type	Models (Total)
A	42	GLU	2
A	84	ARG	2
A	131	ARG	2
A	133	GLN	2
A	151	LEU	2
A	182	LYS	2
A	211	GLU	2
A	227	LEU	2
A	255	LYS	2
A	355	GLN	2
A	360	ARG	2
A	472	MET	2
A	473	LYS	2
A	537	ARG	2
A	589	LEU	2
A	596	ARG	2
A	607	LYS	2
A	608	ILE	2

Chain	Res	Type	Models (Total)
A	622	LEU	2
A	628	ILE	2
A	638	LEU	2
A	669	GLU	2
A	684	VAL	2
A	707	GLN	2
A	710	LYS	2
A	744	ARG	2
A	764	GLU	2
A	769	ILE	2
A	777	LYS	2
A	794	LYS	2
A	816	ILE	2
A	867	ARG	2
A	903	ARG	2
A	964	ARG	2
A	977	HIS	2
A	978	ILE	2
A	1034	LYS	2
A	1040	ARG	2
A	1044	LEU	2
A	1073	LEU	2
A	1090	GLU	2
A	1094	ILE	2
A	1161	HIS	2
A	1198	ASP	2
A	1275	GLN	2
A	1286	LEU	2
A	1293	LEU	2

5. Fit to Data Used for Modeling Assessment

5.3. 3DEM

This section describes fit of models to the 3DEM data. Only results for the representative model, selected as a first model with the largest number of asymmetric units.

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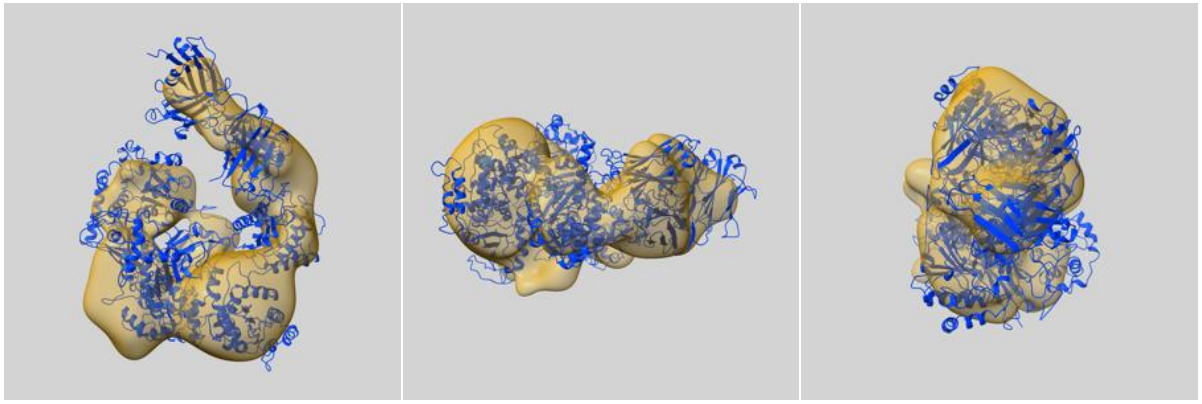
5.3.1. Map-model fit

Only results for the representative Model 1 are shown.

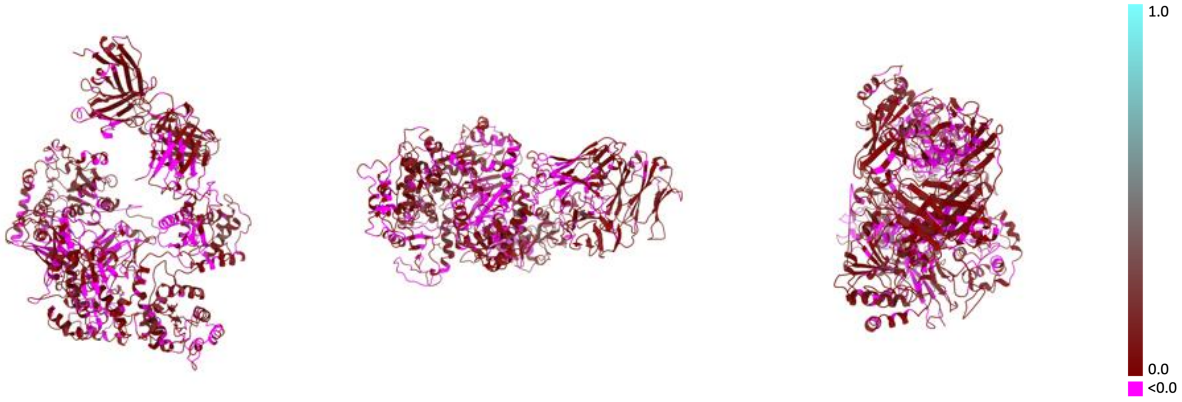
5.3.1.1 Map-model overlay



X **Y** **Z**

The images above show the 3D surface view of the map at the recommended contour level 0.043 at 50% transparency in yellow overlaid with a ribbon representation of the model colored in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

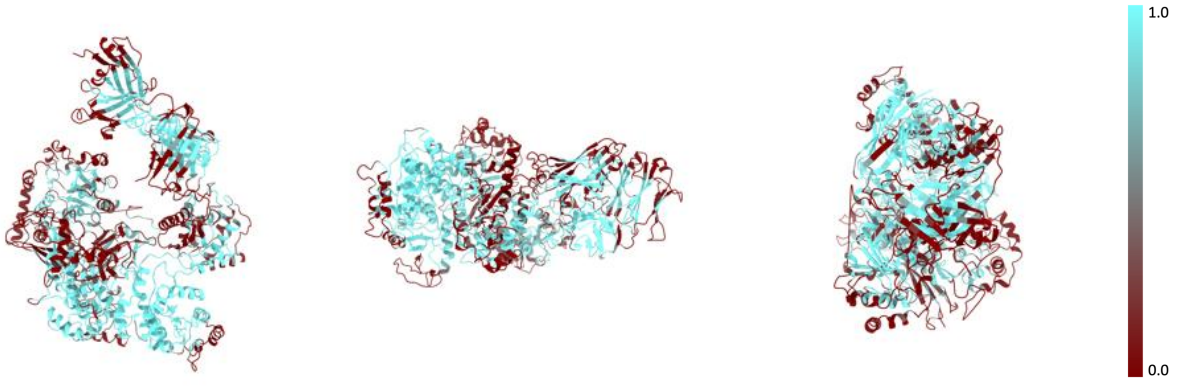
5.3.1.2. Q-score mapped to coordinate model



X **Y** **Z**

The images above show the model with each residue colored 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.

5.3.1.3. Atom inclusion mapped to coordinate model

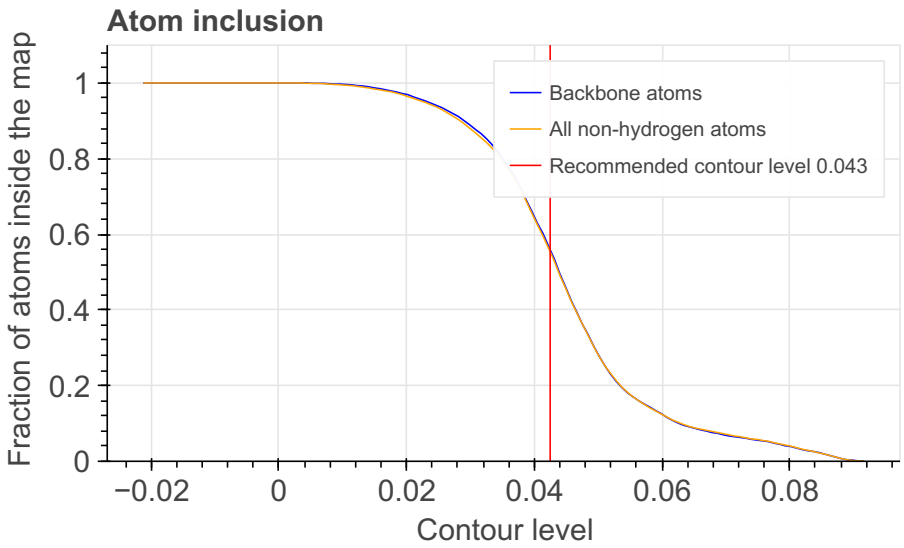


X **Y** **Z**

The images above show the model with each residue colored according to its atom inclusion. This shows to what extent they are inside

the map at the recommended contour level 0.043 .

5.3.1.4. Atom inclusion



At the recommended contour level, 56% of all backbone atoms, 55% of all non-hydrogen atoms, are inside the map.

5.3.1.5. Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.043) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.554	0.043
A	0.555	0.040
B	0.627	0.073
C	0.470	0.040

6. Fit to Data Used for Validation Assessment

Validation for this section is under development.

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