Full wwPDB EM Validation Report

Jun 29, 2026 – 10:32 am BST

PDB ID	:	9RNJ / pdb_00009rnj
EMDB ID	:	EMD-54094
Title	:	Cryo-EM structure of the human potassium chloride cotransporter T906A/T1007A phospho-knockout mutants KCC2b bound ATP in LMNG (outward-facing state, dimer)
Authors	:	Matsuoka, R.; Oswald, C.; Jazayeri, A.; Duerr, K.L.
Deposited on	:	2025-06-19
Resolution	:	3.86 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 (i) 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 (1)) were used in the production of this report:

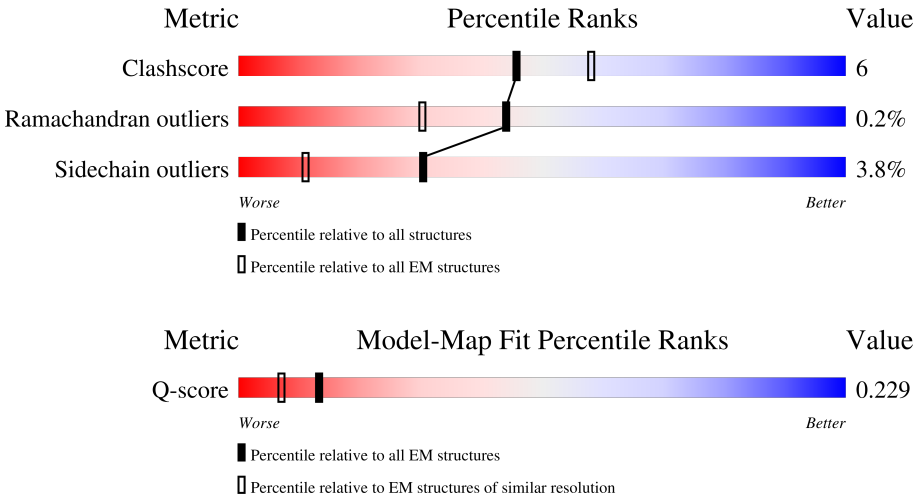
EMDB validation analysis	:	0.0.1.dev133
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.50

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.86 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)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	8889 (3.36 - 4.35)

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	A	1166	56% 63% 14% • 22%
1	B	1166	57% 63% 14% • 22%

2 Entry composition (i)

There are 6 unique types of molecules in this entry. The entry contains 14148 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 Isoform 2 of Solute carrier family 12 member 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	B	904	Total	C	N	O	S	0	0
			7013	4521	1184	1248	60		
1	A	904	Total	C	N	O	S	0	0
			7013	4521	1184	1248	60		

There are 102 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	-48	MET	-	initiating methionine	UNP Q9H2X9
B	-47	GLY	-	expression tag	UNP Q9H2X9
B	-46	SER	-	expression tag	UNP Q9H2X9
B	-45	ALA	-	expression tag	UNP Q9H2X9
B	-44	TRP	-	expression tag	UNP Q9H2X9
B	-43	SER	-	expression tag	UNP Q9H2X9
B	-42	HIS	-	expression tag	UNP Q9H2X9
B	-41	PRO	-	expression tag	UNP Q9H2X9
B	-40	GLN	-	expression tag	UNP Q9H2X9
B	-39	PHE	-	expression tag	UNP Q9H2X9
B	-38	GLU	-	expression tag	UNP Q9H2X9
B	-37	LYS	-	expression tag	UNP Q9H2X9
B	-36	GLY	-	expression tag	UNP Q9H2X9
B	-35	GLY	-	expression tag	UNP Q9H2X9
B	-34	GLY	-	expression tag	UNP Q9H2X9
B	-33	SER	-	expression tag	UNP Q9H2X9
B	-32	GLY	-	expression tag	UNP Q9H2X9
B	-31	GLY	-	expression tag	UNP Q9H2X9
B	-30	GLY	-	expression tag	UNP Q9H2X9
B	-29	SER	-	expression tag	UNP Q9H2X9
B	-28	GLY	-	expression tag	UNP Q9H2X9
B	-27	GLY	-	expression tag	UNP Q9H2X9
B	-26	SER	-	expression tag	UNP Q9H2X9
B	-25	ALA	-	expression tag	UNP Q9H2X9
B	-24	TRP	-	expression tag	UNP Q9H2X9
B	-23	SER	-	expression tag	UNP Q9H2X9

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Chain	Residue	Modelled	Actual	Comment	Reference
B	-22	HIS	-	expression tag	UNP Q9H2X9
B	-21	PRO	-	expression tag	UNP Q9H2X9
B	-20	GLN	-	expression tag	UNP Q9H2X9
B	-19	PHE	-	expression tag	UNP Q9H2X9
B	-18	GLU	-	expression tag	UNP Q9H2X9
B	-17	LYS	-	expression tag	UNP Q9H2X9
B	-16	HIS	-	expression tag	UNP Q9H2X9
B	-15	HIS	-	expression tag	UNP Q9H2X9
B	-14	HIS	-	expression tag	UNP Q9H2X9
B	-13	HIS	-	expression tag	UNP Q9H2X9
B	-12	HIS	-	expression tag	UNP Q9H2X9
B	-11	HIS	-	expression tag	UNP Q9H2X9
B	-10	HIS	-	expression tag	UNP Q9H2X9
B	-9	HIS	-	expression tag	UNP Q9H2X9
B	-8	HIS	-	expression tag	UNP Q9H2X9
B	-7	HIS	-	expression tag	UNP Q9H2X9
B	-6	LEU	-	expression tag	UNP Q9H2X9
B	-5	GLU	-	expression tag	UNP Q9H2X9
B	-4	VAL	-	expression tag	UNP Q9H2X9
B	-3	LEU	-	expression tag	UNP Q9H2X9
B	-2	PHE	-	expression tag	UNP Q9H2X9
B	-1	GLN	-	expression tag	UNP Q9H2X9
B	0	GLY	-	expression tag	UNP Q9H2X9
B	1	PRO	-	expression tag	UNP Q9H2X9
B	69R	ALA	-	insertion	UNP Q9H2X9
A	-48	MET	-	initiating methionine	UNP Q9H2X9
A	-47	GLY	-	expression tag	UNP Q9H2X9
A	-46	SER	-	expression tag	UNP Q9H2X9
A	-45	ALA	-	expression tag	UNP Q9H2X9
A	-44	TRP	-	expression tag	UNP Q9H2X9
A	-43	SER	-	expression tag	UNP Q9H2X9
A	-42	HIS	-	expression tag	UNP Q9H2X9
A	-41	PRO	-	expression tag	UNP Q9H2X9
A	-40	GLN	-	expression tag	UNP Q9H2X9
A	-39	PHE	-	expression tag	UNP Q9H2X9
A	-38	GLU	-	expression tag	UNP Q9H2X9
A	-37	LYS	-	expression tag	UNP Q9H2X9
A	-36	GLY	-	expression tag	UNP Q9H2X9
A	-35	GLY	-	expression tag	UNP Q9H2X9
A	-34	GLY	-	expression tag	UNP Q9H2X9
A	-33	SER	-	expression tag	UNP Q9H2X9
A	-32	GLY	-	expression tag	UNP Q9H2X9

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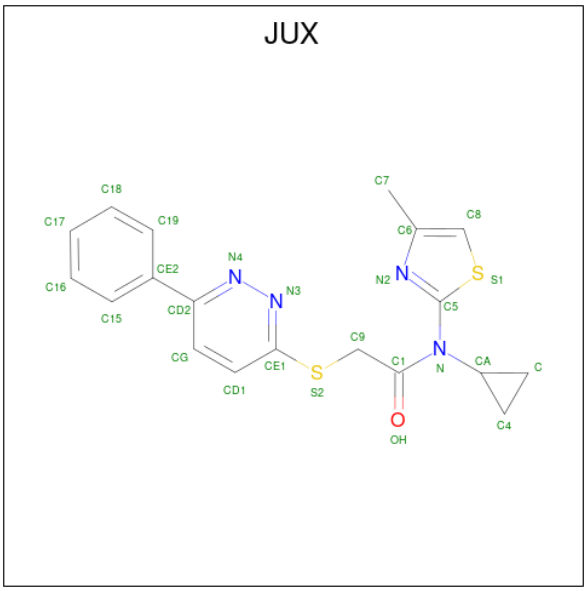
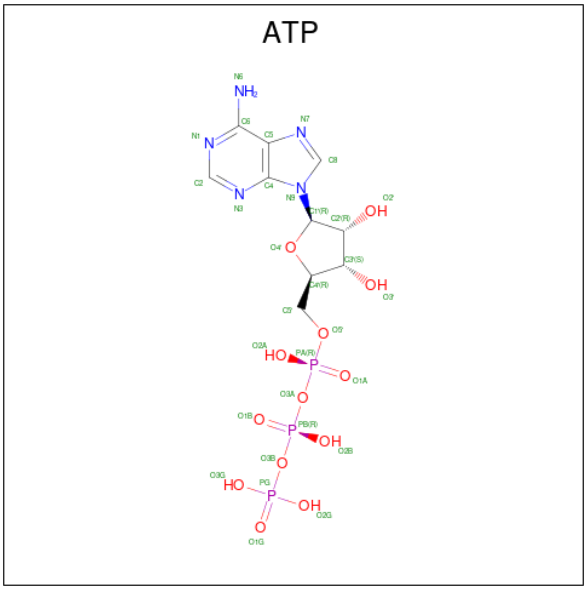
Chain	Residue	Modelled	Actual	Comment	Reference
A	-31	GLY	-	expression tag	UNP Q9H2X9
A	-30	GLY	-	expression tag	UNP Q9H2X9
A	-29	SER	-	expression tag	UNP Q9H2X9
A	-28	GLY	-	expression tag	UNP Q9H2X9
A	-27	GLY	-	expression tag	UNP Q9H2X9
A	-26	SER	-	expression tag	UNP Q9H2X9
A	-25	ALA	-	expression tag	UNP Q9H2X9
A	-24	TRP	-	expression tag	UNP Q9H2X9
A	-23	SER	-	expression tag	UNP Q9H2X9
A	-22	HIS	-	expression tag	UNP Q9H2X9
A	-21	PRO	-	expression tag	UNP Q9H2X9
A	-20	GLN	-	expression tag	UNP Q9H2X9
A	-19	PHE	-	expression tag	UNP Q9H2X9
A	-18	GLU	-	expression tag	UNP Q9H2X9
A	-17	LYS	-	expression tag	UNP Q9H2X9
A	-16	HIS	-	expression tag	UNP Q9H2X9
A	-15	HIS	-	expression tag	UNP Q9H2X9
A	-14	HIS	-	expression tag	UNP Q9H2X9
A	-13	HIS	-	expression tag	UNP Q9H2X9
A	-12	HIS	-	expression tag	UNP Q9H2X9
A	-11	HIS	-	expression tag	UNP Q9H2X9
A	-10	HIS	-	expression tag	UNP Q9H2X9
A	-9	HIS	-	expression tag	UNP Q9H2X9
A	-8	HIS	-	expression tag	UNP Q9H2X9
A	-7	HIS	-	expression tag	UNP Q9H2X9
A	-6	LEU	-	expression tag	UNP Q9H2X9
A	-5	GLU	-	expression tag	UNP Q9H2X9
A	-4	VAL	-	expression tag	UNP Q9H2X9
A	-3	LEU	-	expression tag	UNP Q9H2X9
A	-2	PHE	-	expression tag	UNP Q9H2X9
A	-1	GLN	-	expression tag	UNP Q9H2X9
A	0	GLY	-	expression tag	UNP Q9H2X9
A	1	PRO	-	expression tag	UNP Q9H2X9
A	69R	ALA	-	insertion	UNP Q9H2X9

- Molecule 2 is N-cyclopropyl-N-(4-methyl-1,3-thiazol-2-yl)-2-[(6-phenylpyridazin-3-yl)sulfanyl]acetamide (CCD ID: JUX) (formula: $C_{19}H_{18}N_4OS_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
2	B	1	Total	C	N	O	S	0
			26	19	4	1	2	
2	A	1	Total	C	N	O	S	0
			26	19	4	1	2	

- Molecule 3 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula: $C_{10}H_{16}N_5O_{13}P_3$).



Mol	Chain	Residues	Atoms					AltConf
3	B	1	Total	C	N	O	P	0
			31	10	5	13	3	
3	A	1	Total	C	N	O	P	0
			31	10	5	13	3	

- Molecule 4 is CHLORIDE ION (CCD ID: CL) (formula: Cl).

Mol	Chain	Residues	Atoms	AltConf
4	B	1	Total Cl 1 1	0
4	A	1	Total Cl 1 1	0

- Molecule 5 is SODIUM ION (CCD ID: NA) (formula: Na).

Mol	Chain	Residues	Atoms	AltConf
5	B	2	Total Na 2 2	0
5	A	2	Total Na 2 2	0

- Molecule 6 is water.

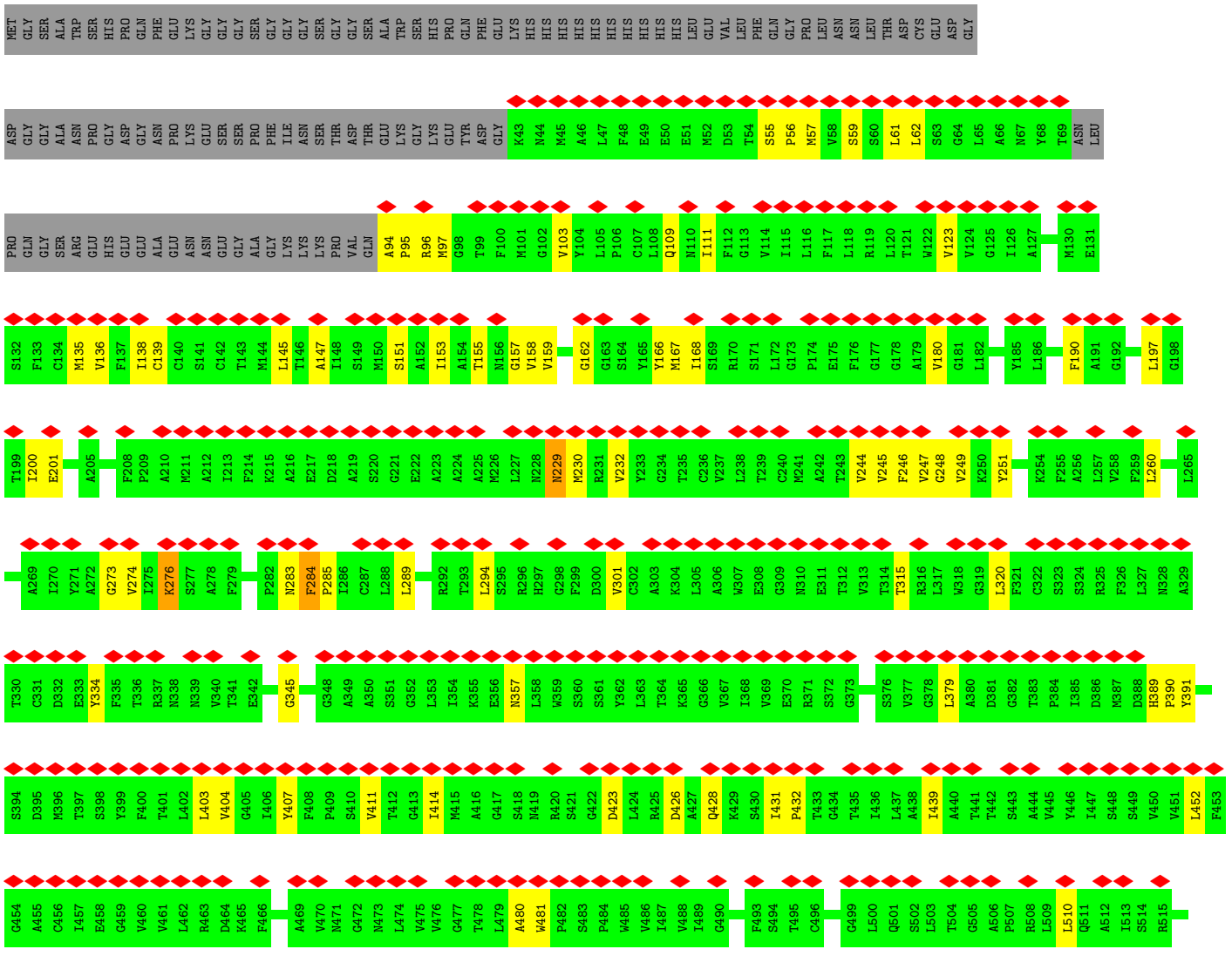
Mol	Chain	Residues	Atoms	AltConf
6	B	1	Total O 1 1	0
6	A	1	Total O 1 1	0

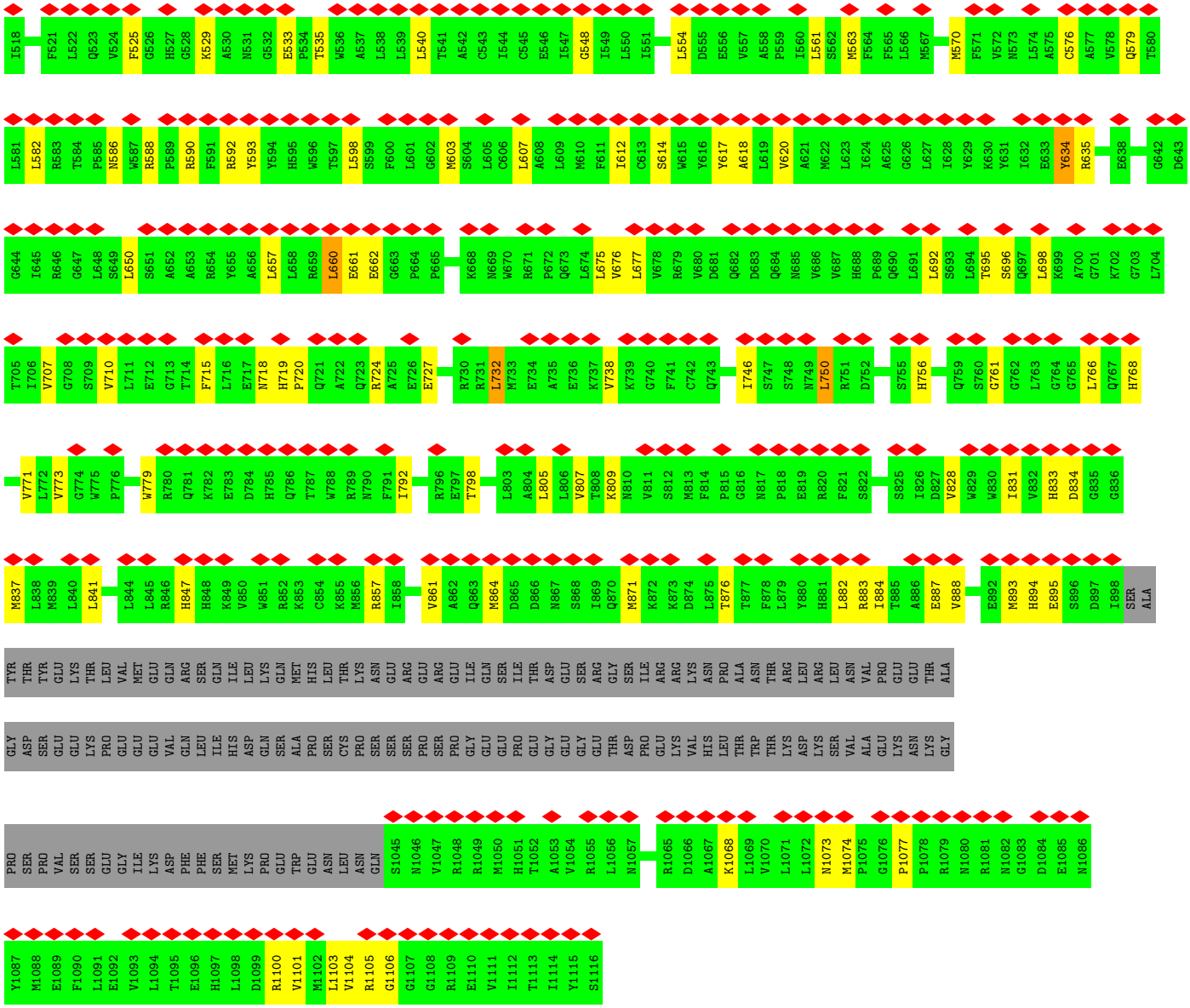
3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

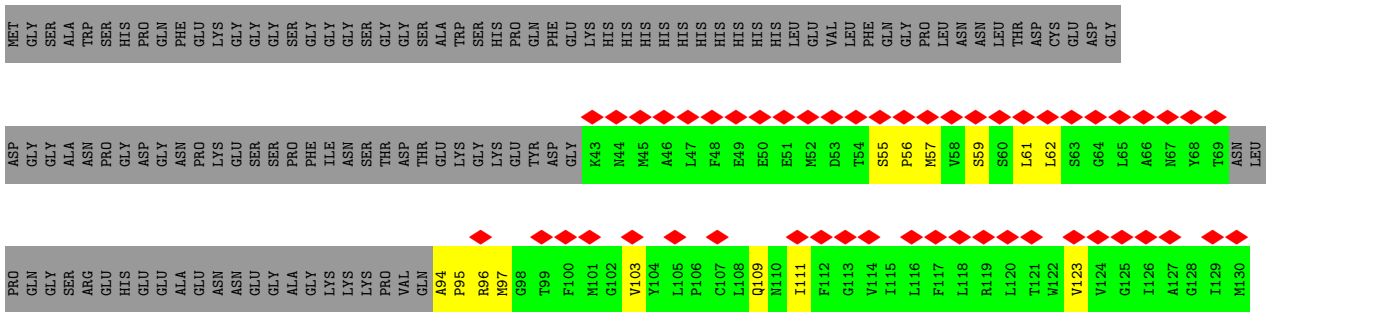
- Molecule 1: Isoform 2 of Solute carrier family 12 member 5

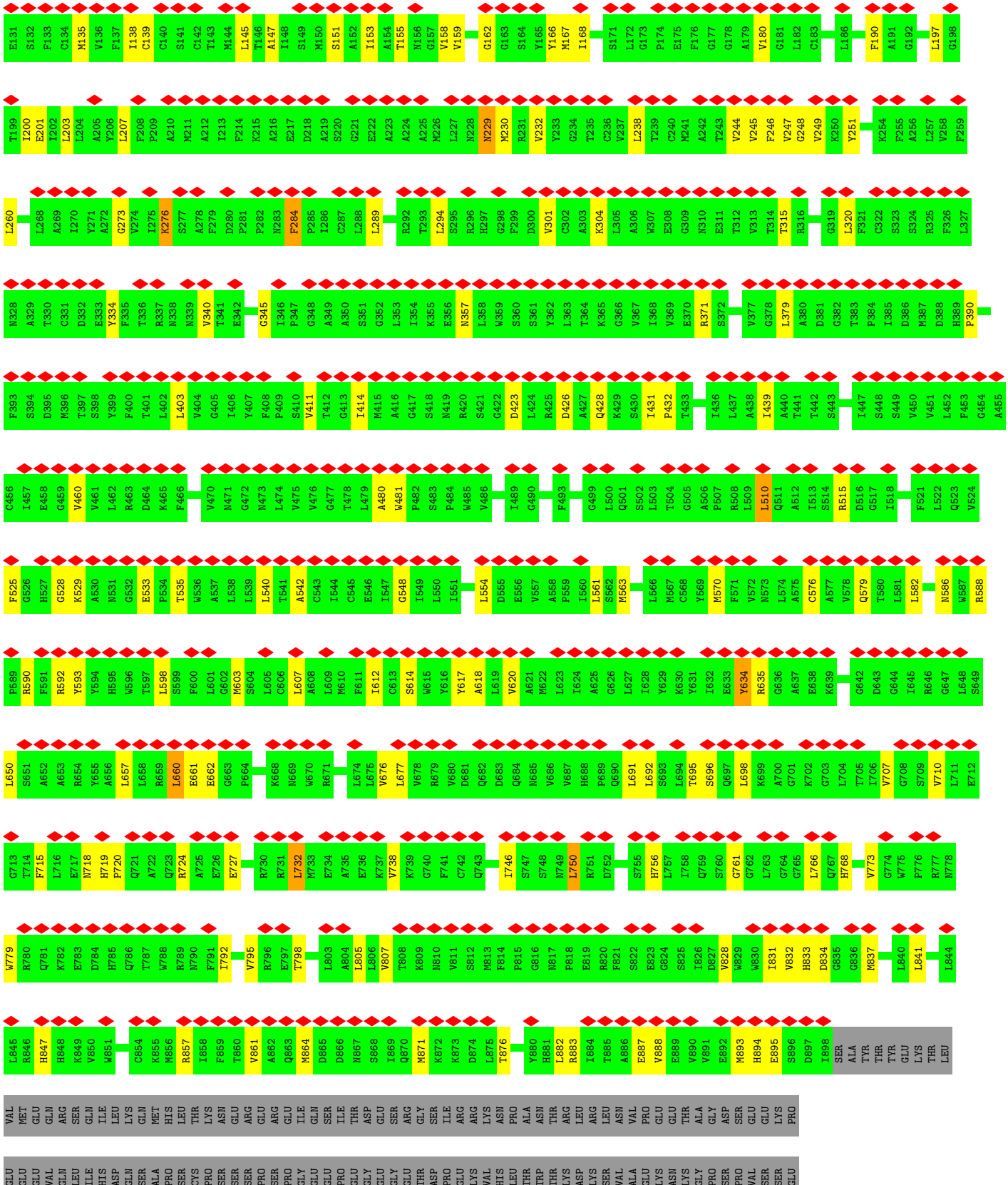
Chain B:

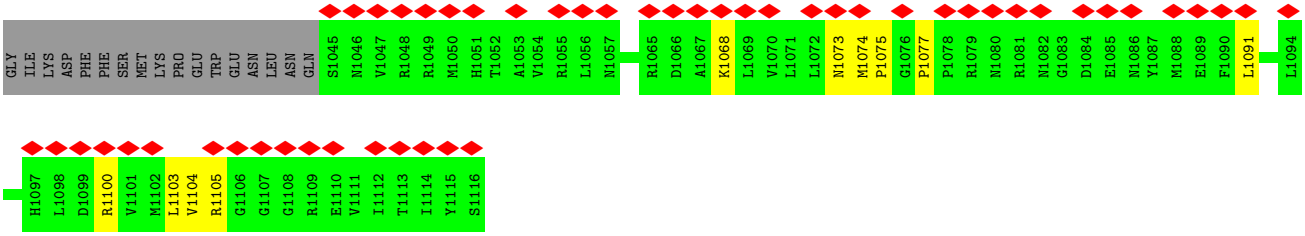




• Molecule 1: Isoform 2 of Solute carrier family 12 member 5




E131 S132 F133 C134 M135 V136 F137 I138 C139 C140 S141 C142 T143 M144 L145 T146 A147 I148 S149 M150 S151 A152 I153 A154 T155 N156 G157 V158 V159 G162 G163 S164 Y165 Y166 M167 I168 S171 L172 G173 P174 E175 F176 G177 G178 A179 V180 G181 L182 C183 L186 F190 A191 G192 L197 G198
T199 I200 E201 I202 L203 L204 A205 Y206 L207 F208 P209 A210 M211 A212 I213 F214 K215 A216 E217 D218 A219 S220 G221 E222 A223 A224 A225 M226 L227 N228 N229 M230 R231 V232 Y233 G234 T235 C236 V237 L238 T239 C240 M241 A242 T243 V244 Y245 F246 V247 G248 V249 K250 Y251 K254 F255 A256 L257 V258 F259
L260 L268 A269 I270 Y271 A272 G273 W274 I275 K276 S277 A278 F279 D280 P281 P282 N283 P284 P285 I286 C287 L288 L289 R292 T293 L294 S295 R296 H297 G298 F299 D300 V301 C302 A303 K304 L305 A306 W307 E308 G309 N310 E311 T312 V313 T314 T315 R316 G319 L320 F321 C322 S323 S324 R325 F326 L327
N328 A329 T330 C331 D332 E333 Y334 F335 T336 R337 N338 N339 V340 T341 E342 G345 I346 P347 G348 A349 A350 S351 G352 L353 I354 K355 E356 N357 L358 W359 S360 S361 Y362 L363 T364 K365 G366 V367 I368 V369 E370 R371 S372 V377 G378 L379 A380 D381 G382 T383 P384 I385 D386 M387 D388 H389 P390
F393 S394 D395 M396 T397 S398 Y399 F400 T401 L402 L403 V404 G405 I406 Y407 F408 P409 S410 V411 T412 G413 I414 M415 A416 G417 S418 N419 R420 S421 G422 D423 L424 R425 D426 A427 Q428 K429 S430 I431 P432 T433 I436 L437 A438 I439 A440 T441 T442 S443 I447 S448 S449 V450 V451 L452 F453 G454 A455
C456 I457 E458 G459 V460 V461 L462 R463 D464 K465 F466 V470 N471 G472 N473 L474 V475 V476 G477 T478 L479 A480 W481 P482 S483 P484 W485 V486 I489 G490 F493 G499 L500 Q501 S502 L503 T504 G505 A506 P507 R508 L509 L510 Q511 A512 I513 S514 R515 D516 G517 I518 F521 L522 Q523 V524
F525 G526 H527 G528 K529 A530 N531 G532 E533 P534 T535 W536 A537 L538 L539 L540 T541 A542 C543 I544 C545 E546 I547 G548 I549 L550 I551 L554 D555 E556 V557 A558 P559 I560 L561 S562 M563 L566 M567 C568 Y569 M570 F571 V572 N573 L574 A575 C576 A577 V578 Q579 T580 L581 L582 N586 W587 R588
P589 R590 F591 R592 Y593 Y594 H595 W596 T597 L598 S599 F600 L601 G602 M603 S604 L605 C606 L607 A608 L609 M610 F611 I612 C613 S614 W615 Y616 Y617 A618 L619 V620 A621 M622 L623 I624 A625 G626 L627 I628 Y629 K630 Y631 I632 E633 Y634 R635 G636 A637 E638 K639 G642 D643 G644 I645 R646 G647 L648 S649
L650 S651 A652 A653 R654 Y655 A656 L657 L658 R659 L660 E661 E662 G663 P664 K668 N669 W670 R671 L674 L675 V676 L677 V678 R679 V680 D681 Q682 D683 Q684 N685 V686 V687 H688 P689 Q690 L691 L692 S693 L694 T695 S696 Q697 L698 K699 A700 G701 K702 G703 L704 T705 I706 V707 G708 S709 V710 L711 E712
G713 T714 F715 L716 E717 N718 H719 P720 Q721 A722 Q723 R724 A725 E726 E727 R730 R731 L732 M733 E734 A735 E736 K737 V738 K739 G740 F741 C742 Q743 I746 S747 S748 N749 L750 R751 D752 S755 H756 L757 I758 Q759 S760 G761 G762 L763 G764 G765 L766 Q767 H768 V773 G774 W775 P776 R777 N778
W779 R780 Q781 K782 E783 D784 H785 Q786 T787 W788 R789 N790 F791 I792 V795 R796 E797 T798 L803 A804 L805 L806 V807 T808 K809 N810 V811 S812 M813 F814 P815 G816 N817 P818 E819 R820 F821 S822 E823 G824 S825 I826 D827 V828 W829 W830 I831 V832 H833 D834 G835 G836 M837 L840 L841 L844
L845 R846 H847 H848 K849 V850 W851 C854 K855 M856 R857 I858 F859 T860 V861 A862 Q863 M864 D865 D866 N867 S868 I869 Q870 M871 K872 K873 D874 L875 T876 Y880 H881 L882 R883 I884 T885 A886 E887 V888 E889 V890 V891 E892 M893 H894 E895 S896 D897 I898 SER ALA TYR THR TYR GLU LYS THR LEU
VAL MET GLU GLN ARG SER GLN ILE LEU LYS GLN MET HIS LEU THR LYS ASN GLU ARG GLU ARG GLU ILE GLN SER ILE THR ASP GLU SER ARG GLY SER ILE ARG ARG LYS ASP PRO ALA ASN THR ARG LEU ARG LEU ASN VAL PRO GLU GLU GLU THR ALA GLY ASP SER GLU GLU LYS PRO
GLU GLU GLU VAL GLN LEU ILE HIS ASP GLN SER SER ALA PRO SER CYS PRO SER SER SER PRO SER PRO GLY ILE GLY GLU GLU PRO GLU GLY GLU GLY GLU THR ASP PRO GLU ARG LYS VAL HIS LEU THR TRP THR LYS ASP LYS SER LEU ARG LEU ASN VAL ALA GLU LYS ASN LYS GLY PRO SER SER PRO VAL SER SER GLU


GLY
ILE
LYS
ASP
PHE
PHE
SER
MET
LYS
PRO
GLU
TRP
GLU
ASN
LEU
ASN
GLN
S1045
N1046
V1047
R1048
R1049
M1050
H1051
T1052
A1053
V1054
R1055
L1056
N1057
R1065
D1066
A1067
K1068
L1069
V1070
L1071
L1072
N1073
M1074
P1075
G1076
P1077
P1078
R1079
N1080
R1081
N1082
G1083
D1084
E1085
N1086
Y1087
M1088
E1089
F1090
L1091
L1094
H1097
L1098
D1099
R1100
V1101
M1102
L1103
V1104
R1105
G1106
G1107
G1108
R1109
E1110
V1111
I1112
T1113
I1114
Y1115
S1116

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	44814	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	42	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.346	Depositor
Minimum map value	-0.165	Depositor
Average map value	-0.001	Depositor
Map value standard deviation	0.012	Depositor
Recommended contour level	0.111	Depositor
Map size (Å)	300.96002, 300.96002, 300.96002	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.0032, 1.0032, 1.0032	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: NA, JUX, ATP, CL

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	0.12	0/7170	0.33	0/9729
1	B	0.11	0/7170	0.31	0/9729
All	All	0.11	0/14340	0.32	0/19458

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

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

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	612	ILE	Peptide
1	B	612	ILE	Peptide

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	7013	0	7091	98	0
1	B	7013	0	7091	96	0
2	A	26	0	0	0	0
2	B	26	0	0	0	0
3	A	31	0	12	0	0
3	B	31	0	12	0	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0
5	A	2	0	0	0	0
5	B	2	0	0	0	0
6	A	1	0	0	0	0
6	B	1	0	0	0	0
All	All	14148	0	14206	176	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 6.

All (176) 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:576:CYS:HA	1:A:579:GLN:HB2	1.69	0.72
1:B:576:CYS:HA	1:B:579:GLN:HB2	1.71	0.72
1:B:510:LEU:HD11	1:B:540:LEU:HD23	1.74	0.69
1:A:510:LEU:HD11	1:A:540:LEU:HD23	1.76	0.68
1:B:857:ARG:HA	1:B:887:GLU:HB2	1.79	0.65
1:B:244:VAL:HG13	1:B:251:TYR:HB3	1.79	0.65
1:A:168:ILE:HG21	1:A:180:VAL:HG21	1.79	0.64
1:B:831:ILE:H	1:B:1073:ASN:HD21	1.44	0.64
1:A:244:VAL:HG13	1:A:251:TYR:HB3	1.79	0.64
1:A:320:LEU:HD13	1:A:390:PRO:HG2	1.80	0.62
1:B:168:ILE:HG21	1:B:180:VAL:HG21	1.81	0.62
1:A:857:ARG:HA	1:A:887:GLU:HB2	1.80	0.62
1:B:320:LEU:HD13	1:B:390:PRO:HG2	1.81	0.61
1:A:529:LYS:HB3	1:A:533:GLU:HB2	1.83	0.59
1:B:657:LEU:HD12	1:A:766:LEU:HD23	1.85	0.59
1:B:766:LEU:HD23	1:A:657:LEU:HD12	1.85	0.58
1:B:123:VAL:HG12	1:B:403:LEU:HD22	1.86	0.58
1:B:273:GLY:HA3	1:B:480:ALA:HA	1.86	0.58
1:A:123:VAL:HG12	1:A:403:LEU:HD22	1.86	0.57
1:A:273:GLY:HA3	1:A:480:ALA:HA	1.87	0.57
1:B:570:MET:HG3	1:B:603:MET:HG3	1.87	0.57
1:A:200:ILE:HG21	1:A:230:MET:HA	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:200:ILE:HG21	1:B:230:MET:HA	1.88	0.56
1:B:197:LEU:HA	1:B:200:ILE:HD12	1.88	0.56
1:A:710:VAL:HG11	1:A:750:LEU:HA	1.88	0.56
1:A:570:MET:HG3	1:A:603:MET:HG3	1.87	0.55
1:A:807:VAL:HG13	1:A:1103:LEU:HB2	1.89	0.55
1:B:145:LEU:HD22	1:B:598:LEU:HB3	1.89	0.54
1:B:883:ARG:HG3	1:A:588:ARG:HB2	1.90	0.54
1:B:715:PHE:HA	1:B:746:ILE:HD12	1.89	0.54
1:B:871:MET:HG2	1:A:62:LEU:HD11	1.89	0.54
1:B:62:LEU:HD11	1:A:871:MET:HG2	1.90	0.54
1:A:197:LEU:HA	1:A:200:ILE:HD12	1.89	0.54
1:B:588:ARG:HB2	1:A:883:ARG:HG3	1.89	0.54
1:B:139:CYS:HB3	1:B:411:VAL:HG21	1.90	0.53
1:B:692:LEU:HD12	1:B:732:LEU:HD22	1.89	0.53
1:A:145:LEU:HD22	1:A:598:LEU:HB3	1.91	0.53
1:A:792:ILE:HD11	1:A:1077:PRO:HB3	1.90	0.53
1:B:109:GLN:HB2	1:B:260:LEU:HD11	1.90	0.53
1:B:792:ILE:HD11	1:B:1077:PRO:HB3	1.91	0.53
1:A:861:VAL:HG13	1:A:893:MET:HB2	1.91	0.53
1:B:861:VAL:HG13	1:B:893:MET:HB2	1.91	0.53
1:B:807:VAL:HG13	1:B:1103:LEU:HB2	1.90	0.52
1:B:761:GLY:HA3	1:B:768:HIS:CD2	2.45	0.52
1:A:805:LEU:HB3	1:A:1105:ARG:HB3	1.90	0.52
1:A:153:ILE:HB	1:A:576:CYS:SG	2.50	0.52
1:A:715:PHE:HA	1:A:746:ILE:HD12	1.91	0.52
1:B:153:ILE:HD13	1:B:167:MET:HB3	1.92	0.52
1:A:153:ILE:HD13	1:A:167:MET:HB3	1.92	0.51
1:A:109:GLN:HB2	1:A:260:LEU:HD11	1.93	0.51
1:A:203:LEU:HG	1:A:207:LEU:HD12	1.93	0.51
1:A:761:GLY:HA3	1:A:768:HIS:CD2	2.45	0.51
1:A:155:THR:HB	1:A:590:ARG:HB2	1.93	0.51
1:B:563:MET:HG2	1:B:618:ALA:HA	1.94	0.50
1:B:153:ILE:HB	1:B:576:CYS:SG	2.52	0.50
1:B:650:LEU:HD13	1:A:660:LEU:HD21	1.93	0.50
1:B:1074:MET:HG2	1:B:1105:ARG:HB2	1.93	0.50
1:B:696:SER:HB3	1:B:738:VAL:HG22	1.93	0.49
1:B:710:VAL:HG11	1:B:750:LEU:HA	1.92	0.49
1:B:155:THR:HB	1:B:590:ARG:HB2	1.94	0.49
1:A:162:GLY:HA3	1:A:166:TYR:HB2	1.94	0.49
1:A:304:LYS:HB3	1:A:340:VAL:HG22	1.93	0.49
1:B:284:PHE:HB3	1:B:345:GLY:H	1.77	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:245:VAL:HA	1:A:248:GLY:HA2	1.95	0.48
1:A:284:PHE:HB3	1:A:345:GLY:H	1.78	0.48
1:A:563:MET:HG2	1:A:618:ALA:HA	1.95	0.48
1:B:162:GLY:HA3	1:B:166:TYR:HB2	1.95	0.48
1:B:635:ARG:HD2	1:B:635:ARG:H	1.79	0.47
1:A:1074:MET:HG2	1:A:1105:ARG:HB2	1.96	0.47
1:B:660:LEU:HD21	1:A:650:LEU:HD13	1.97	0.47
1:A:692:LEU:HD12	1:A:732:LEU:HD22	1.95	0.47
1:A:696:SER:HB3	1:A:738:VAL:HG22	1.96	0.47
1:A:876:THR:HG22	1:A:888:VAL:HG11	1.97	0.47
1:B:190:PHE:HB3	1:B:561:LEU:HD21	1.96	0.47
1:B:548:GLY:O	1:B:554:LEU:HD21	2.14	0.47
1:B:805:LEU:HB3	1:B:1105:ARG:HB3	1.97	0.47
1:B:809:LYS:HB3	1:B:1101:VAL:HB	1.96	0.47
1:B:1074:MET:HB3	1:B:1103:LEU:HB3	1.96	0.47
1:A:289:LEU:HB2	1:A:294:LEU:HD11	1.97	0.47
1:B:876:THR:HG22	1:B:888:VAL:HG11	1.96	0.46
1:A:190:PHE:HB3	1:A:561:LEU:HD21	1.96	0.46
1:A:139:CYS:HB3	1:A:411:VAL:HG21	1.96	0.46
1:A:548:GLY:O	1:A:554:LEU:HD21	2.15	0.46
1:A:635:ARG:HD2	1:A:635:ARG:H	1.81	0.46
1:B:677:LEU:HB2	1:B:773:VAL:HG12	1.98	0.46
1:A:515:ARG:HH21	1:A:528:GLY:HA3	1.81	0.46
1:B:55:SER:HA	1:A:833:HIS:HB3	1.99	0.45
1:A:151:SER:HB2	1:A:432:PRO:HB3	1.98	0.45
1:A:882:LEU:O	1:A:883:ARG:HG2	2.16	0.45
1:B:151:SER:HB2	1:B:432:PRO:HB3	1.99	0.45
1:A:676:VAL:HB	1:A:707:VAL:HG12	1.98	0.45
1:B:334:TYR:HD2	1:B:379:LEU:HG	1.82	0.44
1:B:718:ASN:HB2	1:B:746:ILE:HG21	1.99	0.44
1:A:334:TYR:HD2	1:A:379:LEU:HG	1.82	0.44
1:A:276:LYS:HD3	1:A:481:TRP:HD1	1.83	0.44
1:B:135:MET:HB3	1:B:404:VAL:HG22	1.99	0.44
1:B:245:VAL:HA	1:B:248:GLY:HA2	1.98	0.44
1:B:657:LEU:HD11	1:A:657:LEU:HD11	2.00	0.44
1:A:724:ARG:HA	1:A:727:GLU:HG2	1.99	0.44
1:B:111:ILE:HD11	1:B:414:ILE:HG22	2.00	0.44
1:B:529:LYS:HB3	1:B:533:GLU:HB2	1.99	0.44
1:B:724:ARG:HA	1:B:727:GLU:HG2	1.99	0.44
1:B:157:GLY:HA2	1:A:883:ARG:HH21	1.83	0.43
1:B:276:LYS:HD3	1:B:481:TRP:HD1	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:590:ARG:HD2	1:A:883:ARG:HA	1.99	0.43
1:A:718:ASN:HB2	1:A:746:ILE:HG21	1.99	0.43
1:B:756:HIS:CE1	1:A:756:HIS:HB3	2.52	0.43
1:B:882:LEU:O	1:B:883:ARG:HG2	2.17	0.43
1:A:614:SER:HB3	1:A:617:TYR:HB2	2.00	0.43
1:B:833:HIS:HB3	1:A:55:SER:HA	2.01	0.43
1:B:698:LEU:HD21	1:B:841:LEU:HD22	1.99	0.43
1:A:229:ASN:HA	1:A:232:VAL:HG12	2.00	0.43
1:B:158:VAL:HA	1:B:428:GLN:HE21	1.83	0.43
1:B:650:LEU:HD11	1:A:766:LEU:HD13	2.00	0.43
1:A:831:ILE:H	1:A:1073:ASN:HD21	1.65	0.43
1:A:1068:LYS:O	1:A:1100:ARG:HD2	2.19	0.43
1:B:756:HIS:HB3	1:A:756:HIS:CE1	2.53	0.43
1:B:289:LEU:HB2	1:B:294:LEU:HD11	2.01	0.43
1:B:833:HIS:CG	1:B:834:ASP:H	2.37	0.43
1:B:766:LEU:HD13	1:A:650:LEU:HD11	2.01	0.43
1:B:883:ARG:HA	1:A:590:ARG:HD2	2.00	0.43
1:A:833:HIS:CG	1:A:834:ASP:H	2.37	0.43
1:B:103:VAL:HG11	1:B:431:ILE:HA	2.01	0.42
1:B:389:HIS:HB2	1:B:391:TYR:CE2	2.54	0.42
1:A:677:LEU:HB2	1:A:773:VAL:HG12	2.00	0.42
1:A:94:ALA:HB3	1:A:95:PRO:HD3	2.02	0.42
1:A:158:VAL:HA	1:A:428:GLN:HE21	1.84	0.42
1:A:111:ILE:HD11	1:A:414:ILE:HG22	2.01	0.42
1:A:634:TYR:O	1:A:635:ARG:C	2.63	0.42
1:A:795:VAL:HG22	1:A:805:LEU:HD21	2.00	0.42
1:B:56:PRO:HB2	1:B:61:LEU:HD11	2.02	0.42
1:B:617:TYR:HA	1:B:620:VAL:HG12	2.02	0.42
1:A:676:VAL:HG21	1:A:695:THR:HG21	2.01	0.42
1:A:691:LEU:O	1:A:695:THR:HG23	2.19	0.42
1:B:675:LEU:HD23	1:B:771:VAL:HG22	2.02	0.42
1:A:284:PHE:HD1	1:A:284:PHE:HA	1.72	0.42
1:A:617:TYR:HA	1:A:620:VAL:HG12	2.02	0.42
1:B:229:ASN:HA	1:B:232:VAL:HG12	2.00	0.42
1:B:592:ARG:HG2	1:B:593:TYR:H	1.84	0.42
1:B:676:VAL:HG21	1:B:695:THR:HG21	2.01	0.42
1:A:159:VAL:HG13	1:A:167:MET:HE3	2.02	0.42
1:B:159:VAL:HG13	1:B:167:MET:HE3	2.01	0.42
1:A:135:MET:HA	1:A:138:ILE:HG12	2.01	0.41
1:A:719:HIS:N	1:A:720:PRO:HD2	2.35	0.41
1:B:661:GLU:HG2	1:B:662:GLU:H	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:798:THR:HG21	1:B:805:LEU:HD13	2.02	0.41
1:A:525:PHE:CE2	1:A:540:LEU:HD22	2.54	0.41
1:B:525:PHE:CE2	1:B:540:LEU:HD22	2.54	0.41
1:B:634:TYR:O	1:B:635:ARG:C	2.63	0.41
1:A:56:PRO:HB2	1:A:61:LEU:HD11	2.02	0.41
1:A:57:MET:HG2	1:A:59:SER:H	1.85	0.41
1:A:832:VAL:H	1:A:1073:ASN:ND2	2.18	0.41
1:B:614:SER:HB3	1:B:617:TYR:HB2	2.03	0.41
1:B:201:GLU:HB3	1:B:230:MET:HE2	2.01	0.41
1:B:719:HIS:N	1:B:720:PRO:HD2	2.35	0.41
1:A:698:LEU:HD21	1:A:841:LEU:HD22	2.03	0.41
1:B:57:MET:HG2	1:B:59:SER:H	1.85	0.41
1:B:147:ALA:HB2	1:B:439:ILE:HD12	2.03	0.41
1:A:832:VAL:H	1:A:1073:ASN:HD21	1.69	0.41
1:B:94:ALA:HB3	1:B:95:PRO:HD3	2.03	0.41
1:B:136:VAL:HG12	1:B:407:TYR:CZ	2.56	0.41
1:B:274:VAL:HG11	1:B:452:LEU:HD13	2.03	0.41
1:B:834:ASP:HB3	1:B:1106:GLY:O	2.21	0.41
1:A:103:VAL:HG11	1:A:431:ILE:HA	2.03	0.41
1:A:592:ARG:HG2	1:A:593:TYR:H	1.85	0.41
1:A:661:GLU:HG2	1:A:662:GLU:H	1.85	0.41
1:A:371:ARG:HD2	1:A:460:VAL:HG21	2.03	0.41
1:B:135:MET:HA	1:B:138:ILE:HG12	2.02	0.40
1:A:201:GLU:HB3	1:A:230:MET:HE2	2.03	0.40
1:B:1068:LYS:O	1:B:1100:ARG:HD2	2.21	0.40
1:B:283:ASN:OD1	1:B:285:PRO:HD3	2.22	0.40
1:B:715:PHE:HD1	1:B:746:ILE:HD12	1.86	0.40
1:A:238:LEU:HD21	1:A:542:ALA:O	2.21	0.40
1:A:147:ALA:HB2	1:A:439:ILE:HD12	2.03	0.40
1:A:1075:PRO:HD2	1:A:1091:LEU:HD21	2.04	0.40
1:A:798:THR:HG21	1:A:805:LEU:HD13	2.04	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	898/1166 (77%)	823 (92%)	73 (8%)	2 (0%)	43	74
1	B	898/1166 (77%)	824 (92%)	72 (8%)	2 (0%)	43	74
All	All	1796/2332 (77%)	1647 (92%)	145 (8%)	4 (0%)	44	74

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	423	ASP
1	A	423	ASP
1	B	634	TYR
1	A	634	TYR

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	759/984 (77%)	731 (96%)	28 (4%)	30	54
1	B	759/984 (77%)	730 (96%)	29 (4%)	29	53
All	All	1518/1968 (77%)	1461 (96%)	57 (4%)	30	53

All (57) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	96	ARG
1	B	97	MET
1	B	229	ASN
1	B	246	PHE
1	B	247	VAL
1	B	249	VAL
1	B	276	LYS
1	B	284	PHE
1	B	301	VAL

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Mol	Chain	Res	Type
1	B	315	THR
1	B	357	ASN
1	B	426	ASP
1	B	535	THR
1	B	582	LEU
1	B	586	ASN
1	B	607	LEU
1	B	660	LEU
1	B	707	VAL
1	B	732	LEU
1	B	750	LEU
1	B	779	TRP
1	B	828	VAL
1	B	837	MET
1	B	847	HIS
1	B	864	MET
1	B	884	ILE
1	B	894	HIS
1	B	895	GLU
1	B	1104	VAL
1	A	96	ARG
1	A	97	MET
1	A	229	ASN
1	A	246	PHE
1	A	247	VAL
1	A	249	VAL
1	A	276	LYS
1	A	284	PHE
1	A	301	VAL
1	A	315	THR
1	A	357	ASN
1	A	426	ASP
1	A	510	LEU
1	A	535	THR
1	A	582	LEU
1	A	586	ASN
1	A	607	LEU
1	A	660	LEU
1	A	732	LEU
1	A	750	LEU
1	A	779	TRP
1	A	828	VAL

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Mol	Chain	Res	Type
1	A	837	MET
1	A	847	HIS
1	A	864	MET
1	A	894	HIS
1	A	895	GLU
1	A	1104	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (16) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	253	ASN
1	B	357	ASN
1	B	531	ASN
1	B	573	ASN
1	B	586	ASN
1	B	669	ASN
1	B	833	HIS
1	A	109	GLN
1	A	357	ASN
1	A	501	GLN
1	A	527	HIS
1	A	531	ASN
1	A	586	ASN
1	A	669	ASN
1	A	756	HIS
1	A	833	HIS

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 10 ligands modelled in this entry, 6 are monoatomic - leaving 4 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	$\#\|Z\| > 2$
2	JUX	A	1201	-	28,29,29	0.31	0	33,40,40	1.16	1 (3%)
2	JUX	B	1201	-	28,29,29	0.30	0	33,40,40	1.16	1 (3%)
3	ATP	B	1202	-	29,33,33	0.28	0	44,52,52	0.50	1 (2%)
3	ATP	A	1202	-	29,33,33	0.28	0	44,52,52	0.50	1 (2%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	JUX	A	1201	-	-	9/20/23/23	0/4/4/4
2	JUX	B	1201	-	-	9/20/23/23	0/4/4/4
3	ATP	B	1202	-	-	5/22/38/38	0/3/3/3
3	ATP	A	1202	-	-	5/22/38/38	0/3/3/3

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	1201	JUX	C5-N2-C6	6.06	111.46	104.92
2	B	1201	JUX	C5-N2-C6	6.05	111.45	104.92
3	B	1202	ATP	PB-O3B-PG	2.06	139.90	132.83
3	A	1202	ATP	PB-O3B-PG	2.06	139.89	132.83

There are no chirality outliers.

All (28) torsion outliers are listed below:

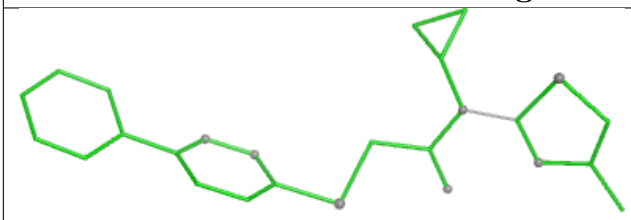
Mol	Chain	Res	Type	Atoms
2	B	1201	JUX	N2-C5-N-C1
2	B	1201	JUX	S1-C5-N-C1
2	B	1201	JUX	C-CA-N-C5
2	B	1201	JUX	C9-C1-N-C5
2	B	1201	JUX	OH-C1-N-CA
2	B	1201	JUX	N3-CE1-S2-C9
2	B	1201	JUX	CD1-CE1-S2-C9
2	A	1201	JUX	N2-C5-N-C1
2	A	1201	JUX	S1-C5-N-C1
2	A	1201	JUX	C-CA-N-C5
2	A	1201	JUX	C9-C1-N-C5
2	A	1201	JUX	OH-C1-N-CA
2	A	1201	JUX	N3-CE1-S2-C9
2	A	1201	JUX	CD1-CE1-S2-C9
2	B	1201	JUX	OH-C1-N-C5
2	A	1201	JUX	OH-C1-N-C5
3	B	1202	ATP	PB-O3A-PA-O5'
3	A	1202	ATP	PB-O3A-PA-O5'
2	B	1201	JUX	C9-C1-N-CA
2	A	1201	JUX	C9-C1-N-CA
3	B	1202	ATP	O4'-C4'-C5'-O5'
3	B	1202	ATP	C3'-C4'-C5'-O5'
3	A	1202	ATP	O4'-C4'-C5'-O5'
3	A	1202	ATP	C3'-C4'-C5'-O5'
3	B	1202	ATP	PB-O3A-PA-O1A
3	A	1202	ATP	PB-O3A-PA-O1A
3	B	1202	ATP	C5'-O5'-PA-O1A
3	A	1202	ATP	C5'-O5'-PA-O1A

There are no ring outliers.

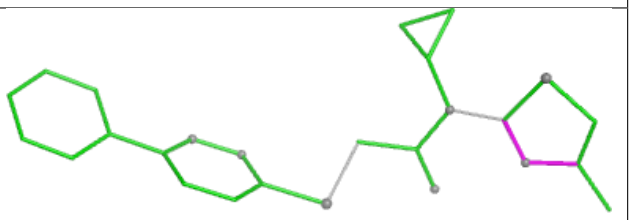
No monomer is involved in short contacts.

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

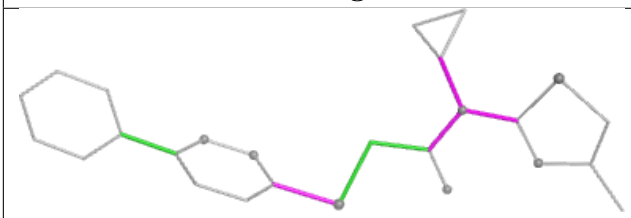
Ligand JUX A 1201



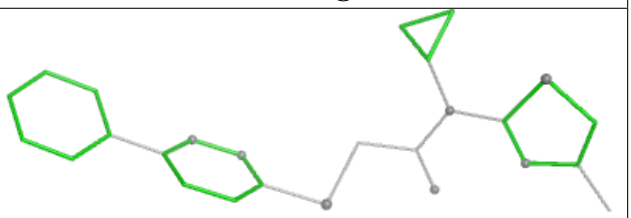
Bond lengths



Bond angles

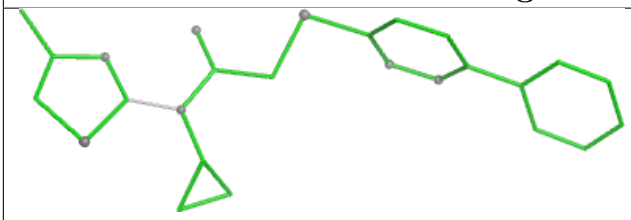


Torsions

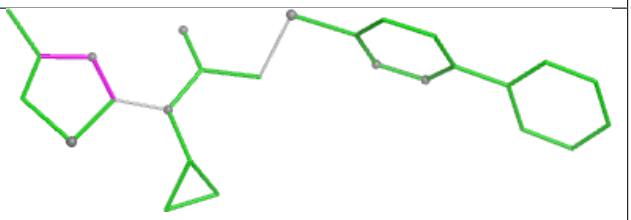


Rings

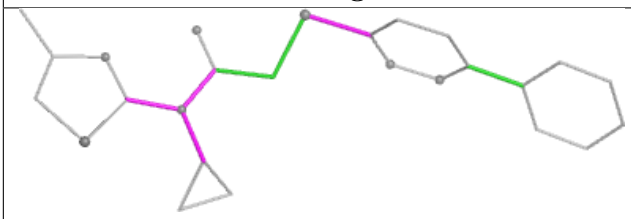
Ligand JUX B 1201



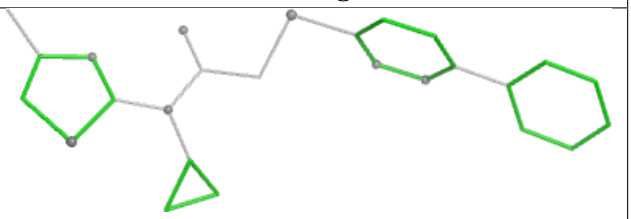
Bond lengths



Bond angles

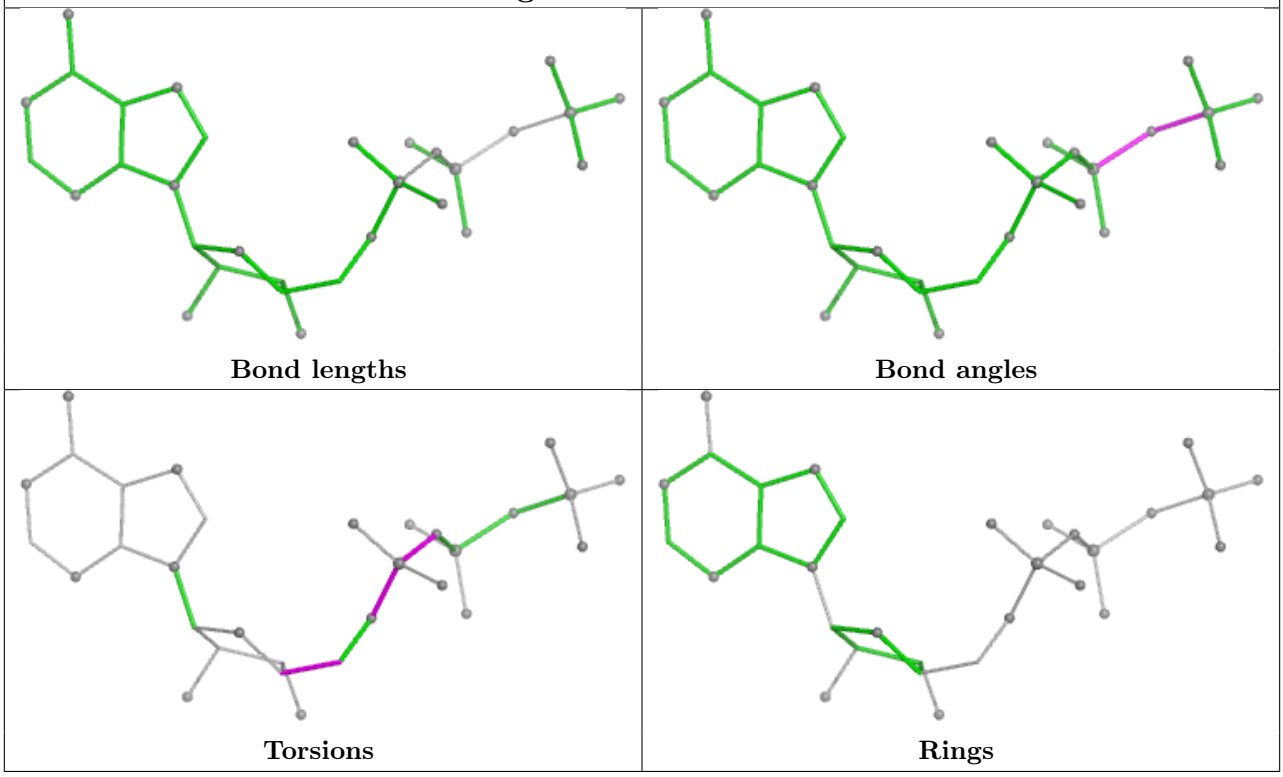


Torsions

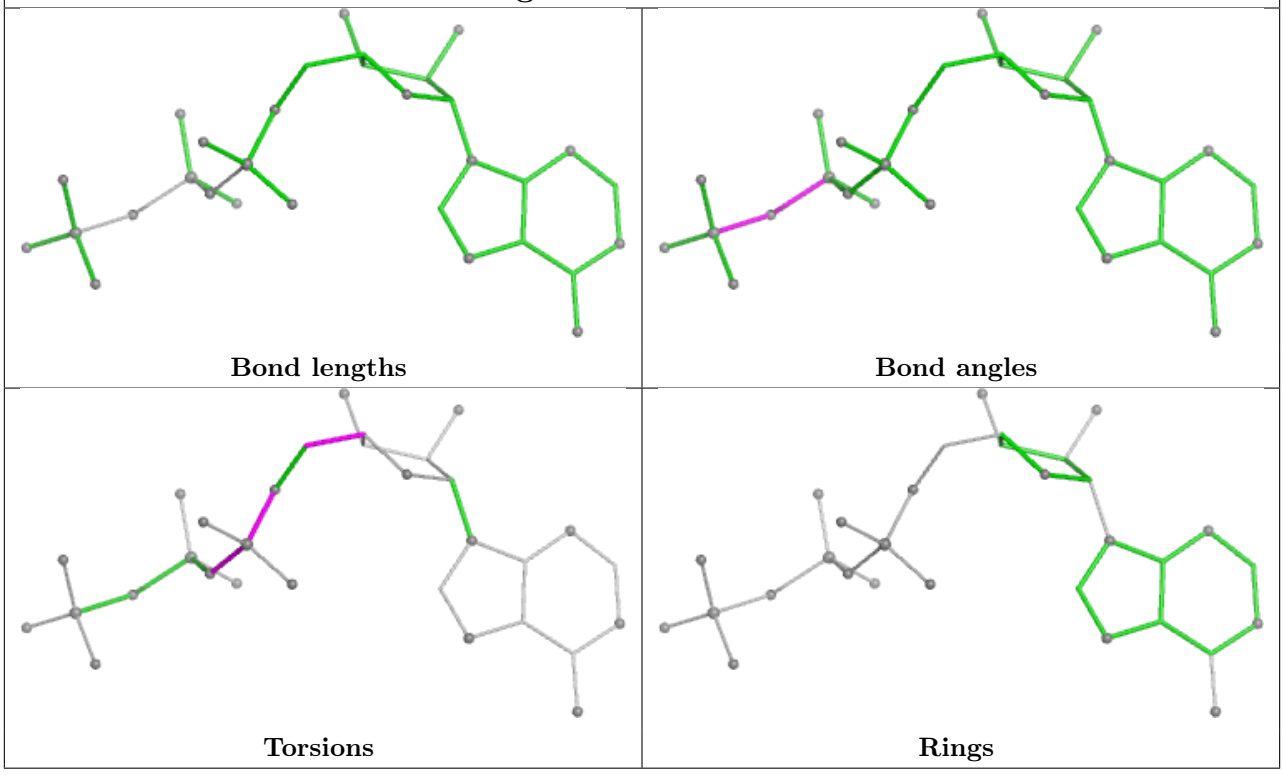


Rings

Ligand ATP B 1202



Ligand ATP A 1202



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.

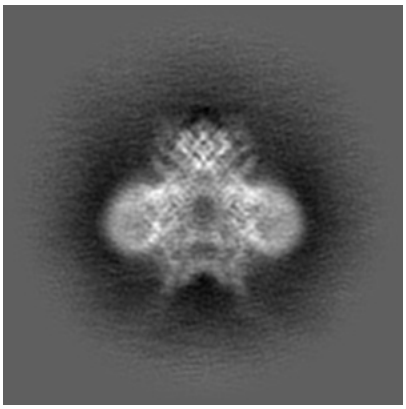
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-54094. These allow visual inspection of the internal detail of the map and identification of artifacts.

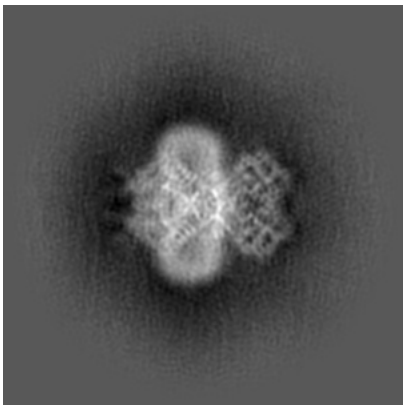
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

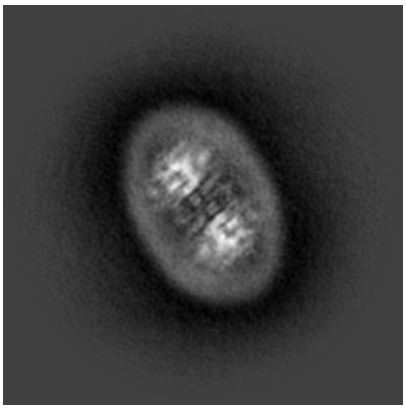
6.1.1 Primary map



X

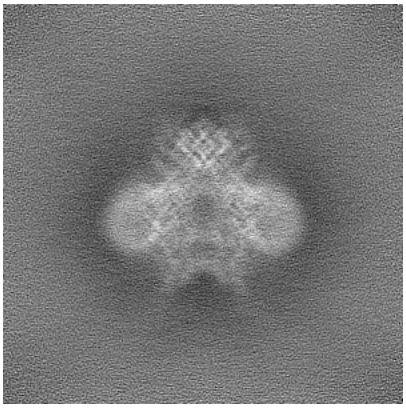


Y

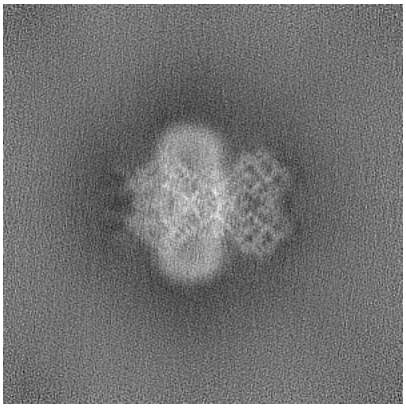


Z

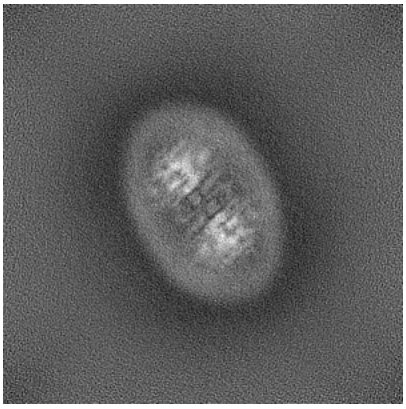
6.1.2 Raw map



X



Y

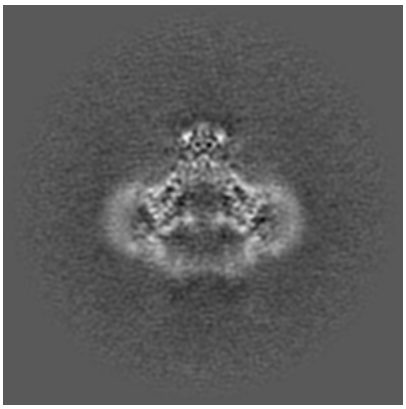


Z

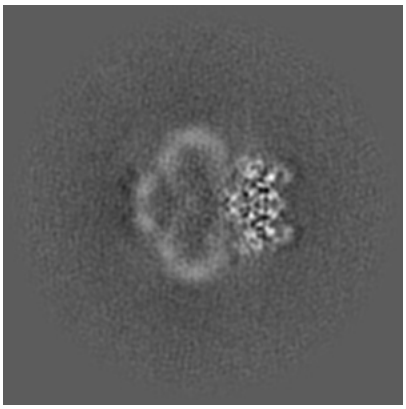
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

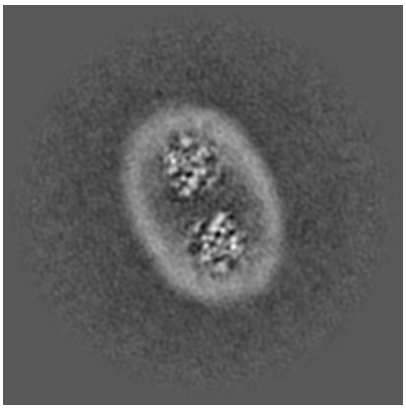
6.2.1 Primary map



X Index: 150

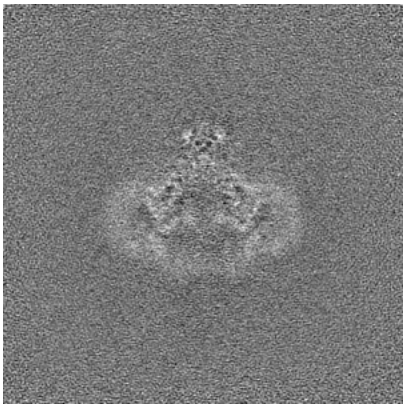


Y Index: 150

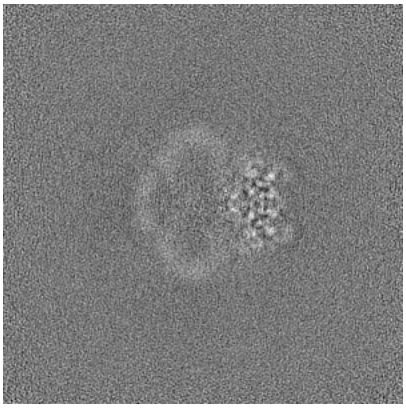


Z Index: 150

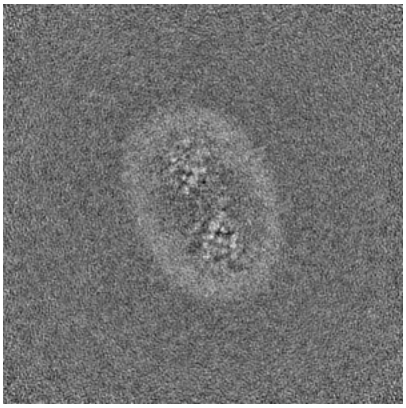
6.2.2 Raw map



X Index: 150



Y Index: 150

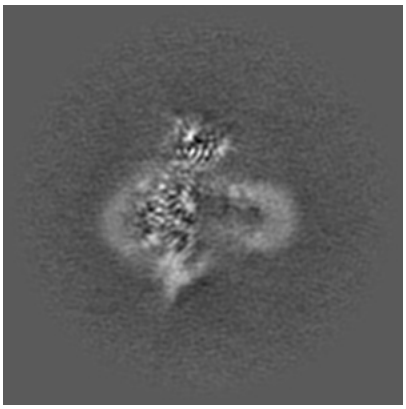


Z Index: 150

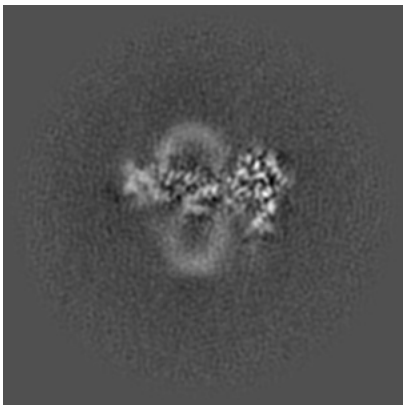
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

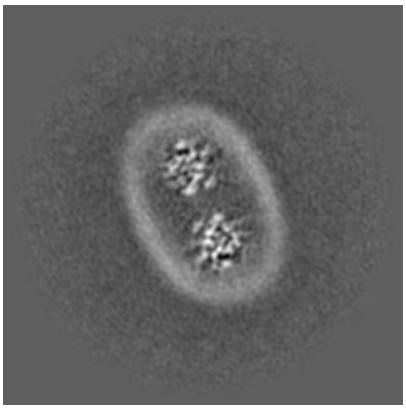
6.3.1 Primary map



X Index: 162

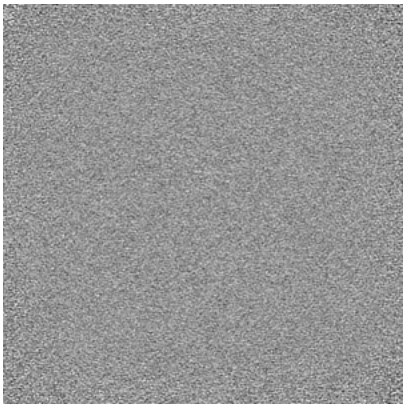


Y Index: 136

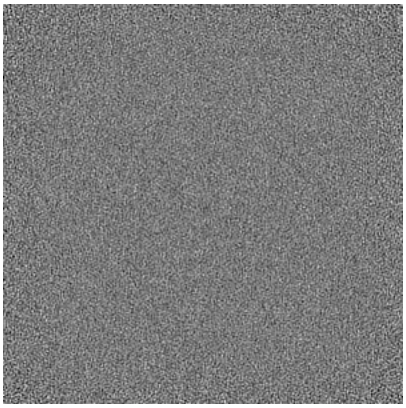


Z Index: 146

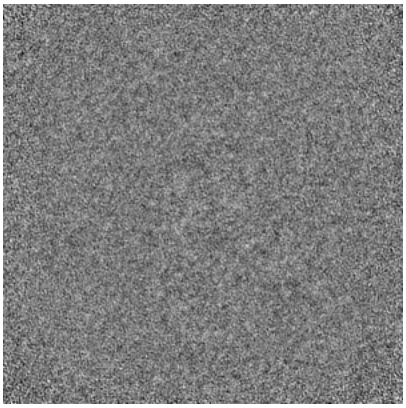
6.3.2 Raw map



X Index: 0



Y Index: 0

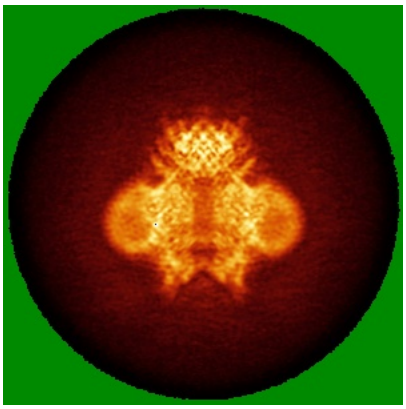


Z Index: 0

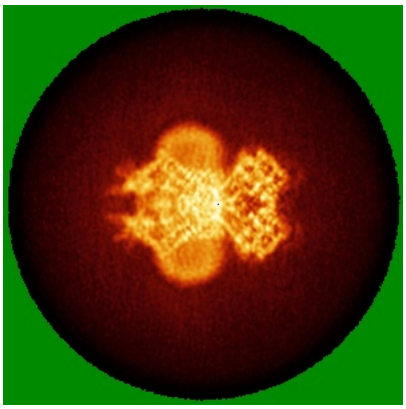
The images above show the largest variance slices of the map in three orthogonal directions.

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

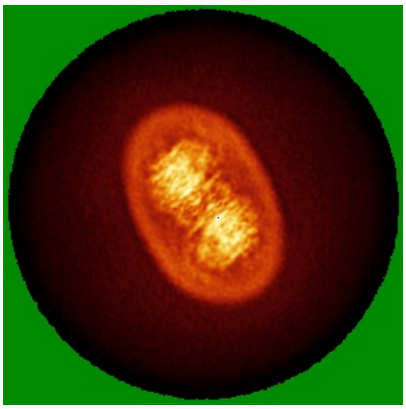
6.4.1 Primary map



X

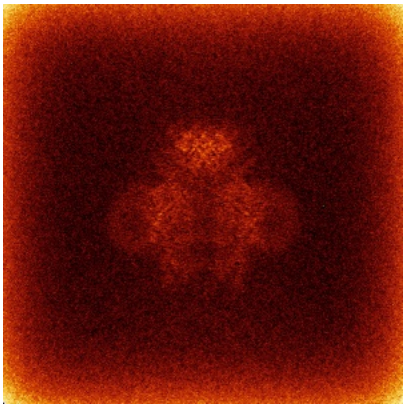


Y

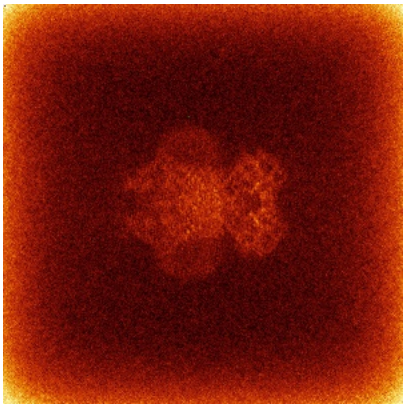


Z

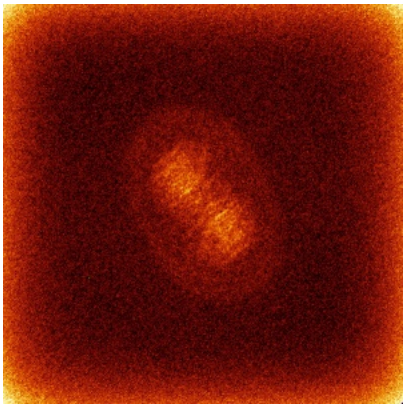
6.4.2 Raw map



X



Y

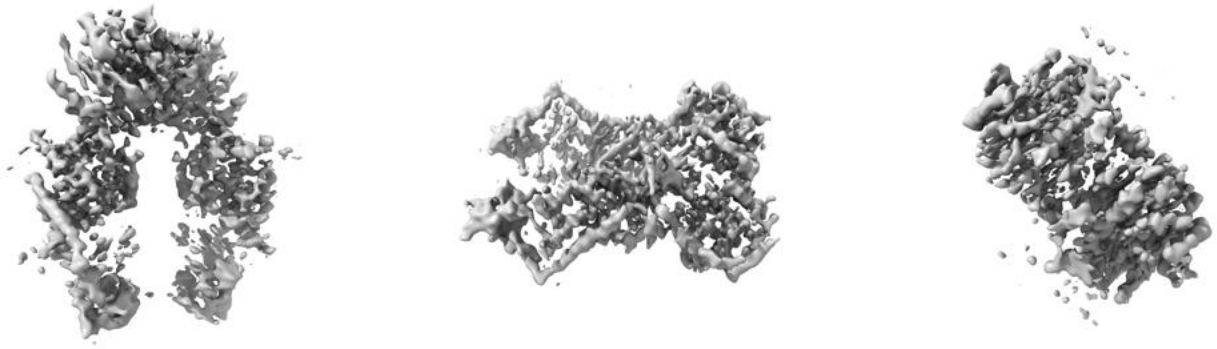


Z

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 (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.111. 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.

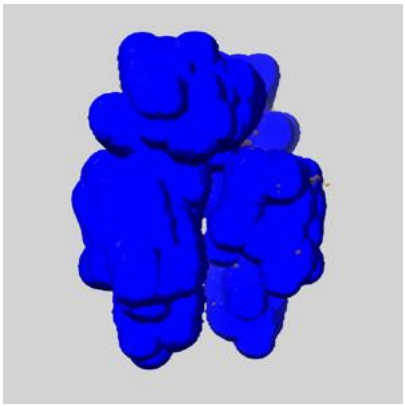
6.6 Mask visualisation (i)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

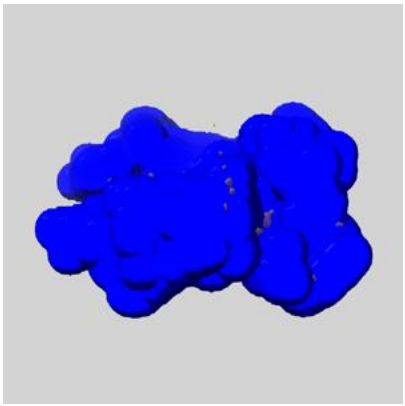
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

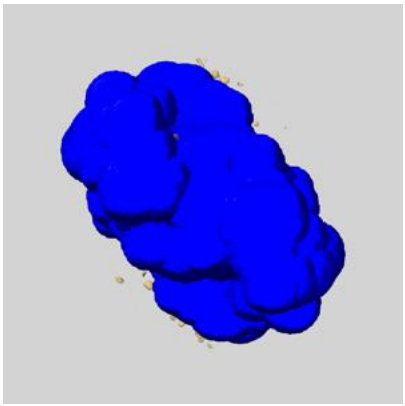
6.6.1 emd_54094_msk_1.map (i)



X



Y

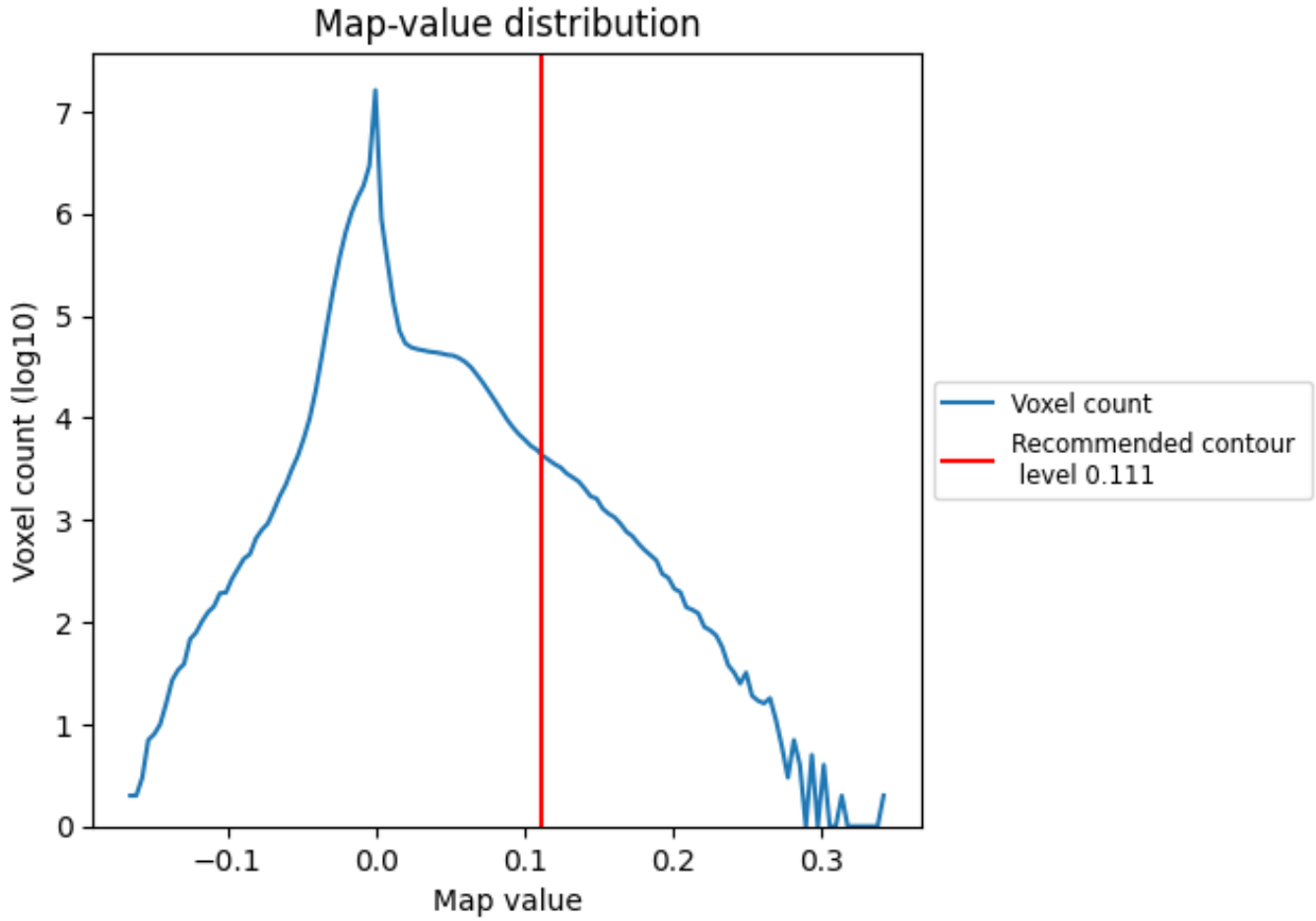


Z

7 Map analysis

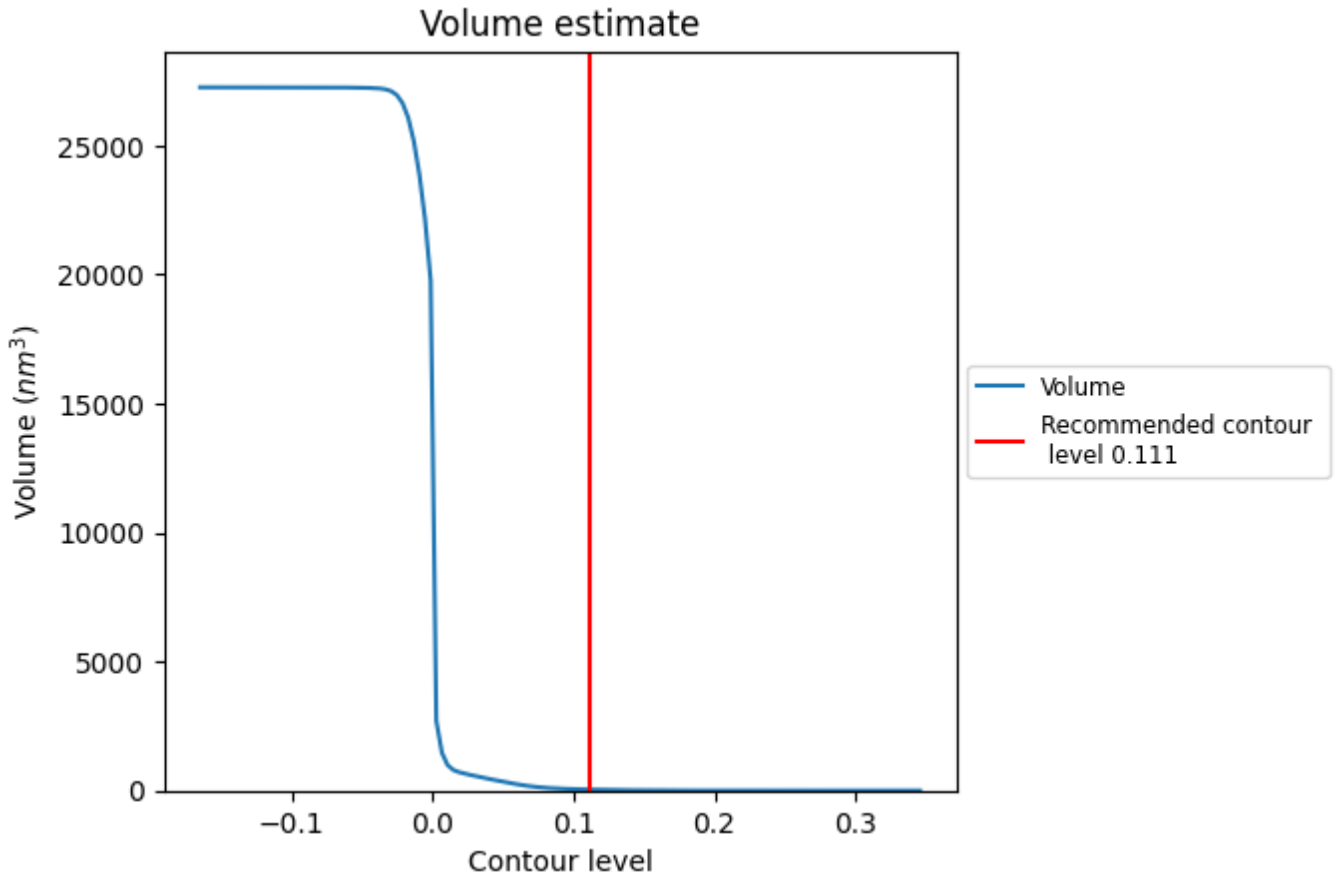
This section contains the results of statistical analysis of the map.

7.1 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.

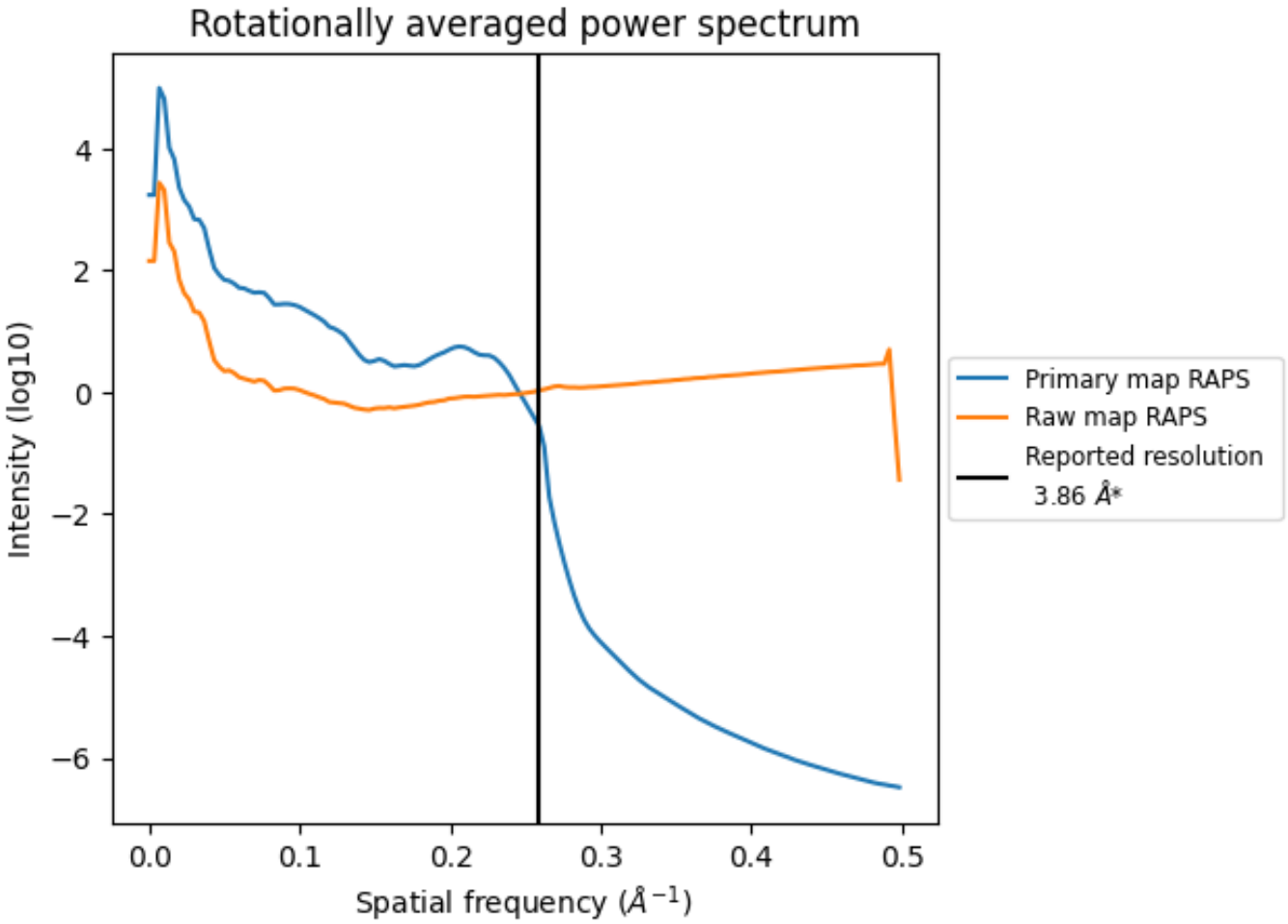
7.2 Volume estimate



The volume at the recommended contour level is 40 nm^3; this corresponds to an approximate mass of 36 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)

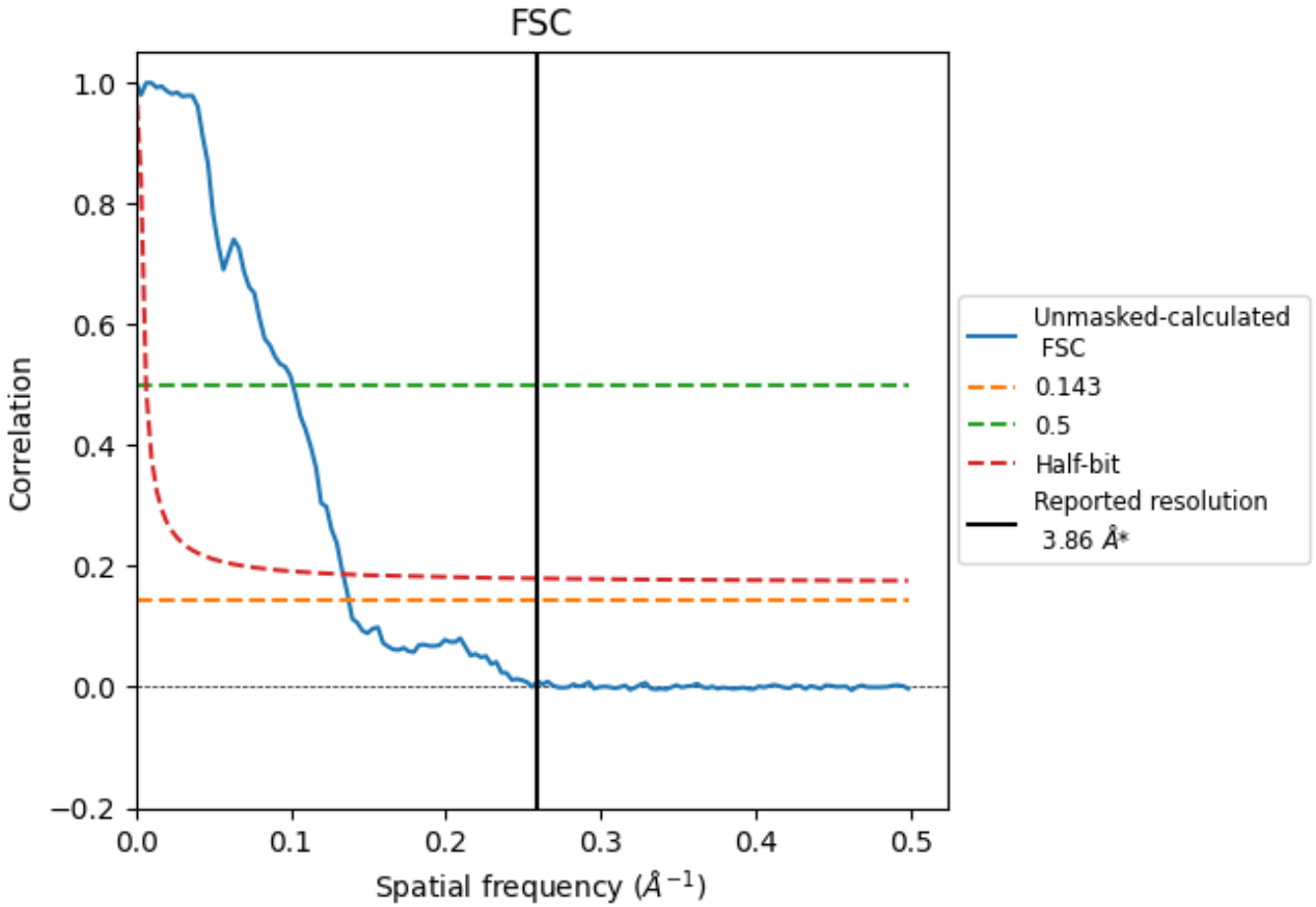


*Reported resolution corresponds to spatial frequency of 0.259 Å^{-1}

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 0.259 Å^{-1}

8.2 Resolution estimates (i)

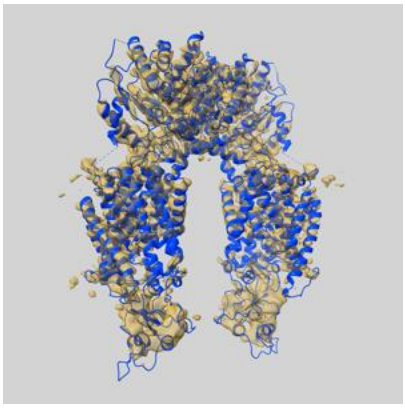
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.86	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	7.28	9.88	7.48

*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 7.28 differs from the reported value 3.86 by more than 10 %

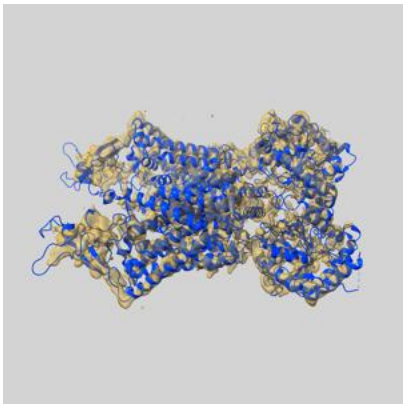
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-54094 and PDB model 9RNJ. Per-residue inclusion information can be found in section 3 on page 8.

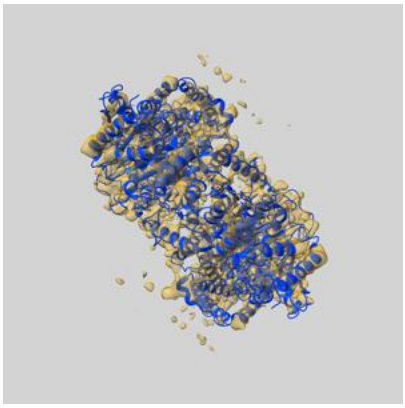
9.1 Map-model overlay



X



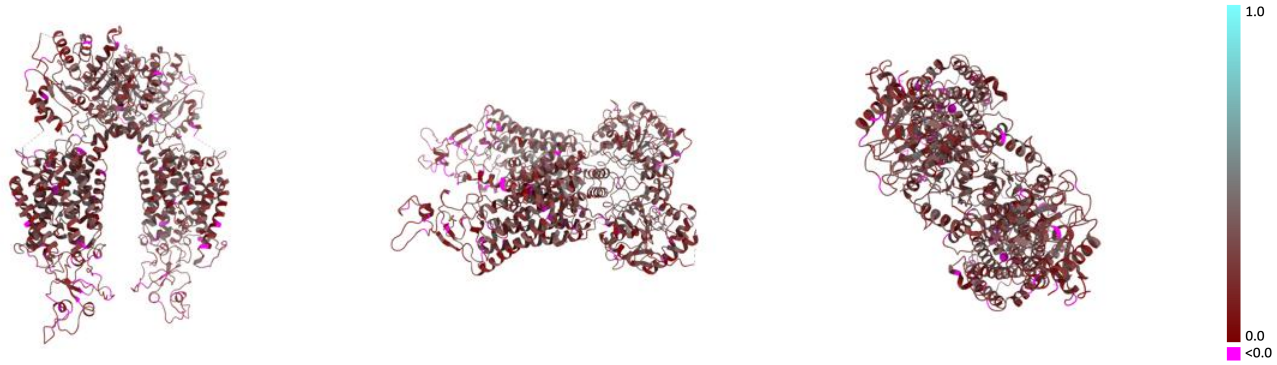
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.111 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.

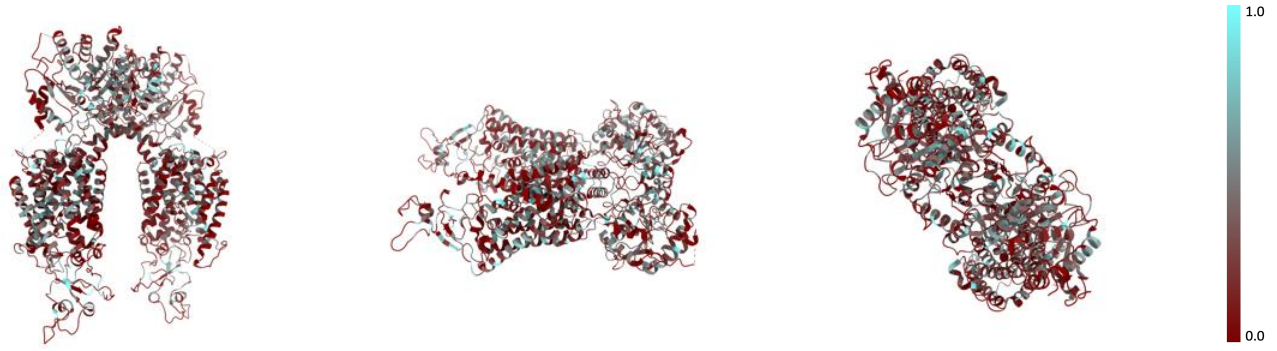
9.2 Q-score mapped to coordinate model



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.

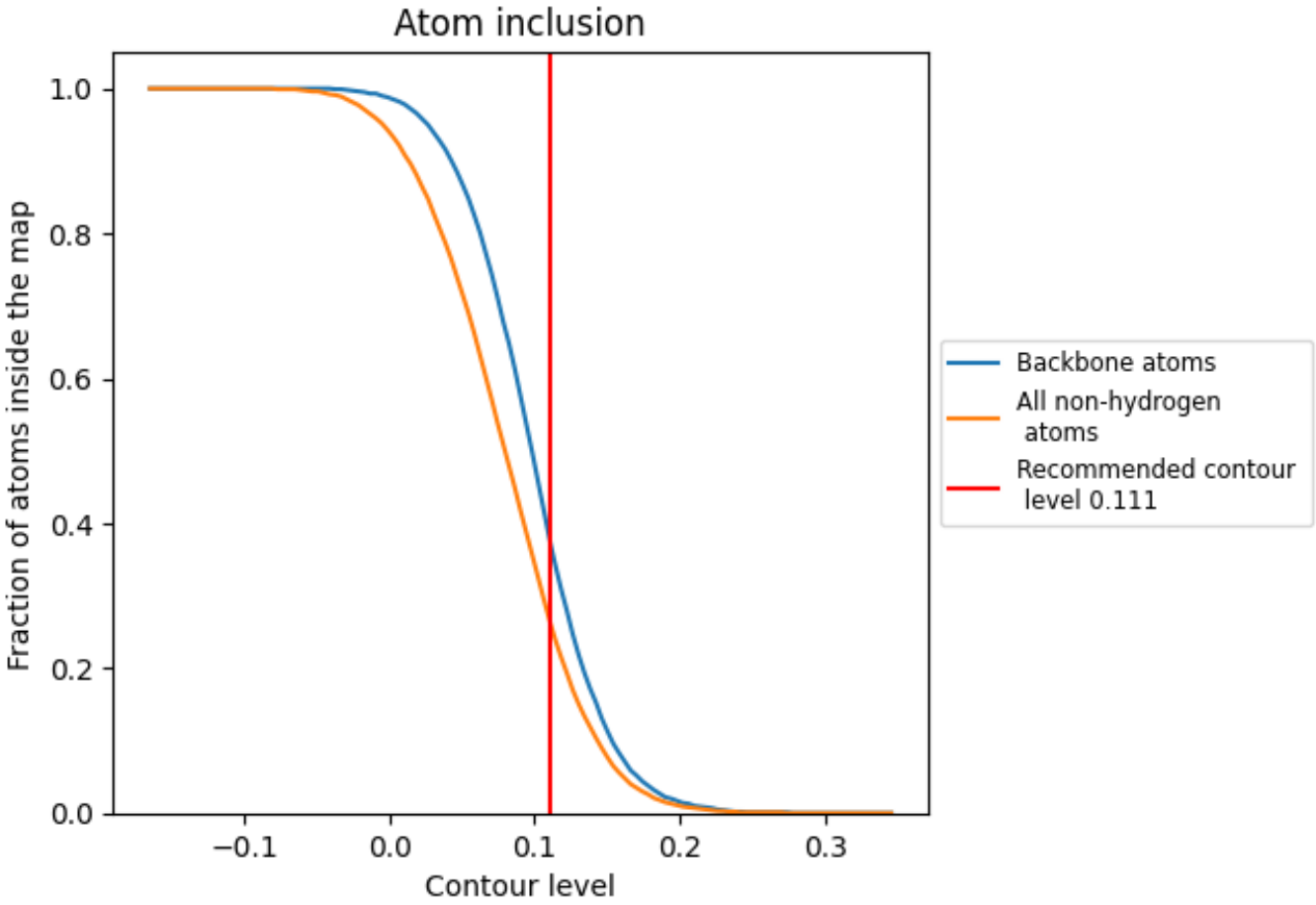
9.3 Atom inclusion mapped to coordinate model



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 (0.111).

9.4 Atom inclusion (i)



At the recommended contour level, 37% of all backbone atoms, 26% 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 (0.111) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.2610	0.2290
A	0.2660	0.2250
B	0.2640	0.2330