Full wwPDB EM Validation Report (i)

Feb 27, 2024 – 09:11 AM EST

PDB ID	:	6V1T
EMDB ID	:	EMD-21017
Title	:	Empty AAVrh.39 particle
Authors	:	Mietzsch, M.; Agbandje-McKenna, M.
Deposited on	:	2019-11-21
Resolution	:	3.39 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 (i)) were used in the production of this report:

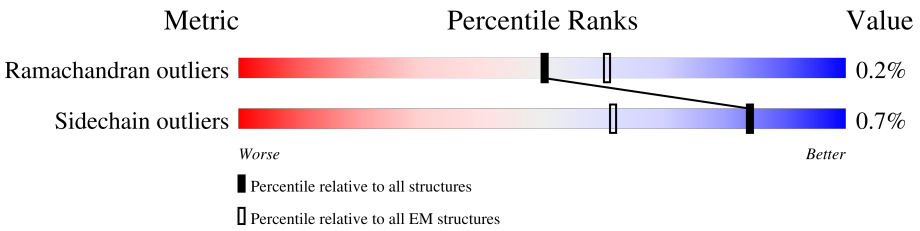
EMDB validation analysis	:	0.0.1.dev70
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

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 3.39 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)
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	1	521	99%
1	2	521	99%
1	3	521	99%
1	4	521	99%
1	5	521	99%
1	6	521	99%
1	7	521	99%
1	8	521	99%
1	A	521	99%

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Mol	Chain	Length	Quality of chain
1	B	521	99%
1	C	521	99%
1	D	521	99%
1	E	521	99%
1	F	521	99%
1	G	521	99%
1	H	521	99%
1	I	521	99%
1	J	521	99%
1	K	521	99%
1	L	521	99%
1	M	521	99%
1	N	521	99%
1	O	521	99%
1	P	521	99%
1	Q	521	99%
1	R	521	99%
1	S	521	99%
1	T	521	99%
1	U	521	99%
1	V	521	99%
1	W	521	99%
1	X	521	99%
1	Y	521	99%
1	Z	521	99%

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Mol	Chain	Length	Quality of chain
1	a	521	99%
1	b	521	99%
1	c	521	99%
1	d	521	99%
1	e	521	99%
1	f	521	99%
1	g	521	99%
1	h	521	99%
1	i	521	99%
1	j	521	99%
1	k	521	99%
1	l	521	99%
1	m	521	99%
1	n	521	99%
1	o	521	99%
1	p	521	99%
1	q	521	99%
1	r	521	99%
1	s	521	99%
1	t	521	99%
1	u	521	99%
1	v	521	99%
1	w	521	99%
1	x	521	99%
1	y	521	99%

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Mol	Chain	Length	Quality of chain
1	z	521	99%

2 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 248280 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 Capsid protein VP1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	521	4138	2612	715	797	14	0	0
1	B	521	4138	2612	715	797	14	0	0
1	C	521	4138	2612	715	797	14	0	0
1	D	521	4138	2612	715	797	14	0	0
1	E	521	4138	2612	715	797	14	0	0
1	F	521	4138	2612	715	797	14	0	0
1	G	521	4138	2612	715	797	14	0	0
1	H	521	4138	2612	715	797	14	0	0
1	I	521	4138	2612	715	797	14	0	0
1	J	521	4138	2612	715	797	14	0	0
1	K	521	4138	2612	715	797	14	0	0
1	L	521	4138	2612	715	797	14	0	0
1	M	521	4138	2612	715	797	14	0	0
1	N	521	4138	2612	715	797	14	0	0
1	O	521	4138	2612	715	797	14	0	0
1	P	521	4138	2612	715	797	14	0	0
1	Q	521	4138	2612	715	797	14	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	R	521	4138	2612	715	797	14	0	0
1	S	521	4138	2612	715	797	14	0	0
1	T	521	4138	2612	715	797	14	0	0
1	U	521	4138	2612	715	797	14	0	0
1	V	521	4138	2612	715	797	14	0	0
1	W	521	4138	2612	715	797	14	0	0
1	X	521	4138	2612	715	797	14	0	0
1	Y	521	4138	2612	715	797	14	0	0
1	Z	521	4138	2612	715	797	14	0	0
1	a	521	4138	2612	715	797	14	0	0
1	b	521	4138	2612	715	797	14	0	0
1	c	521	4138	2612	715	797	14	0	0
1	d	521	4138	2612	715	797	14	0	0
1	e	521	4138	2612	715	797	14	0	0
1	f	521	4138	2612	715	797	14	0	0
1	g	521	4138	2612	715	797	14	0	0
1	h	521	4138	2612	715	797	14	0	0
1	i	521	4138	2612	715	797	14	0	0
1	j	521	4138	2612	715	797	14	0	0
1	k	521	4138	2612	715	797	14	0	0
1	l	521	4138	2612	715	797	14	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	m	521	4138	2612	715	797	14	0	0
1	n	521	4138	2612	715	797	14	0	0
1	o	521	4138	2612	715	797	14	0	0
1	p	521	4138	2612	715	797	14	0	0
1	q	521	4138	2612	715	797	14	0	0
1	r	521	4138	2612	715	797	14	0	0
1	s	521	4138	2612	715	797	14	0	0
1	t	521	4138	2612	715	797	14	0	0
1	u	521	4138	2612	715	797	14	0	0
1	v	521	4138	2612	715	797	14	0	0
1	w	521	4138	2612	715	797	14	0	0
1	x	521	4138	2612	715	797	14	0	0
1	y	521	4138	2612	715	797	14	0	0
1	z	521	4138	2612	715	797	14	0	0
1	1	521	4138	2612	715	797	14	0	0
1	2	521	4138	2612	715	797	14	0	0
1	3	521	4138	2612	715	797	14	0	0
1	4	521	4138	2612	715	797	14	0	0
1	5	521	4138	2612	715	797	14	0	0
1	6	521	4138	2612	715	797	14	0	0
1	7	521	4138	2612	715	797	14	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	8	521	4138	2612	715	797	14	0	0

There are 120 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	315	ASN	SER	conflict	UNP B4Y886
A	417	GLN	THR	conflict	UNP B4Y886
B	315	ASN	SER	conflict	UNP B4Y886
B	417	GLN	THR	conflict	UNP B4Y886
C	315	ASN	SER	conflict	UNP B4Y886
C	417	GLN	THR	conflict	UNP B4Y886
D	315	ASN	SER	conflict	UNP B4Y886
D	417	GLN	THR	conflict	UNP B4Y886
E	315	ASN	SER	conflict	UNP B4Y886
E	417	GLN	THR	conflict	UNP B4Y886
F	315	ASN	SER	conflict	UNP B4Y886
F	417	GLN	THR	conflict	UNP B4Y886
G	315	ASN	SER	conflict	UNP B4Y886
G	417	GLN	THR	conflict	UNP B4Y886
H	315	ASN	SER	conflict	UNP B4Y886
H	417	GLN	THR	conflict	UNP B4Y886
I	315	ASN	SER	conflict	UNP B4Y886
I	417	GLN	THR	conflict	UNP B4Y886
J	315	ASN	SER	conflict	UNP B4Y886
J	417	GLN	THR	conflict	UNP B4Y886
K	315	ASN	SER	conflict	UNP B4Y886
K	417	GLN	THR	conflict	UNP B4Y886
L	315	ASN	SER	conflict	UNP B4Y886
L	417	GLN	THR	conflict	UNP B4Y886
M	315	ASN	SER	conflict	UNP B4Y886
M	417	GLN	THR	conflict	UNP B4Y886
N	315	ASN	SER	conflict	UNP B4Y886
N	417	GLN	THR	conflict	UNP B4Y886
O	315	ASN	SER	conflict	UNP B4Y886
O	417	GLN	THR	conflict	UNP B4Y886
P	315	ASN	SER	conflict	UNP B4Y886
P	417	GLN	THR	conflict	UNP B4Y886
Q	315	ASN	SER	conflict	UNP B4Y886
Q	417	GLN	THR	conflict	UNP B4Y886
R	315	ASN	SER	conflict	UNP B4Y886
R	417	GLN	THR	conflict	UNP B4Y886

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Chain	Residue	Modelled	Actual	Comment	Reference
S	315	ASN	SER	conflict	UNP B4Y886
S	417	GLN	THR	conflict	UNP B4Y886
T	315	ASN	SER	conflict	UNP B4Y886
T	417	GLN	THR	conflict	UNP B4Y886
U	315	ASN	SER	conflict	UNP B4Y886
U	417	GLN	THR	conflict	UNP B4Y886
V	315	ASN	SER	conflict	UNP B4Y886
V	417	GLN	THR	conflict	UNP B4Y886
W	315	ASN	SER	conflict	UNP B4Y886
W	417	GLN	THR	conflict	UNP B4Y886
X	315	ASN	SER	conflict	UNP B4Y886
X	417	GLN	THR	conflict	UNP B4Y886
Y	315	ASN	SER	conflict	UNP B4Y886
Y	417	GLN	THR	conflict	UNP B4Y886
Z	315	ASN	SER	conflict	UNP B4Y886
Z	417	GLN	THR	conflict	UNP B4Y886
a	315	ASN	SER	conflict	UNP B4Y886
a	417	GLN	THR	conflict	UNP B4Y886
b	315	ASN	SER	conflict	UNP B4Y886
b	417	GLN	THR	conflict	UNP B4Y886
c	315	ASN	SER	conflict	UNP B4Y886
c	417	GLN	THR	conflict	UNP B4Y886
d	315	ASN	SER	conflict	UNP B4Y886
d	417	GLN	THR	conflict	UNP B4Y886
e	315	ASN	SER	conflict	UNP B4Y886
e	417	GLN	THR	conflict	UNP B4Y886
f	315	ASN	SER	conflict	UNP B4Y886
f	417	GLN	THR	conflict	UNP B4Y886
g	315	ASN	SER	conflict	UNP B4Y886
g	417	GLN	THR	conflict	UNP B4Y886
h	315	ASN	SER	conflict	UNP B4Y886
h	417	GLN	THR	conflict	UNP B4Y886
i	315	ASN	SER	conflict	UNP B4Y886
i	417	GLN	THR	conflict	UNP B4Y886
j	315	ASN	SER	conflict	UNP B4Y886
j	417	GLN	THR	conflict	UNP B4Y886
k	315	ASN	SER	conflict	UNP B4Y886
k	417	GLN	THR	conflict	UNP B4Y886
l	315	ASN	SER	conflict	UNP B4Y886
l	417	GLN	THR	conflict	UNP B4Y886
m	315	ASN	SER	conflict	UNP B4Y886
m	417	GLN	THR	conflict	UNP B4Y886

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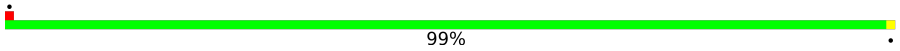
Chain	Residue	Modelled	Actual	Comment	Reference
n	315	ASN	SER	conflict	UNP B4Y886
n	417	GLN	THR	conflict	UNP B4Y886
o	315	ASN	SER	conflict	UNP B4Y886
o	417	GLN	THR	conflict	UNP B4Y886
p	315	ASN	SER	conflict	UNP B4Y886
p	417	GLN	THR	conflict	UNP B4Y886
q	315	ASN	SER	conflict	UNP B4Y886
q	417	GLN	THR	conflict	UNP B4Y886
r	315	ASN	SER	conflict	UNP B4Y886
r	417	GLN	THR	conflict	UNP B4Y886
s	315	ASN	SER	conflict	UNP B4Y886
s	417	GLN	THR	conflict	UNP B4Y886
t	315	ASN	SER	conflict	UNP B4Y886
t	417	GLN	THR	conflict	UNP B4Y886
u	315	ASN	SER	conflict	UNP B4Y886
u	417	GLN	THR	conflict	UNP B4Y886
v	315	ASN	SER	conflict	UNP B4Y886
v	417	GLN	THR	conflict	UNP B4Y886
w	315	ASN	SER	conflict	UNP B4Y886
w	417	GLN	THR	conflict	UNP B4Y886
x	315	ASN	SER	conflict	UNP B4Y886
x	417	GLN	THR	conflict	UNP B4Y886
y	315	ASN	SER	conflict	UNP B4Y886
y	417	GLN	THR	conflict	UNP B4Y886
z	315	ASN	SER	conflict	UNP B4Y886
z	417	GLN	THR	conflict	UNP B4Y886
1	315	ASN	SER	conflict	UNP B4Y886
1	417	GLN	THR	conflict	UNP B4Y886
2	315	ASN	SER	conflict	UNP B4Y886
2	417	GLN	THR	conflict	UNP B4Y886
3	315	ASN	SER	conflict	UNP B4Y886
3	417	GLN	THR	conflict	UNP B4Y886
4	315	ASN	SER	conflict	UNP B4Y886
4	417	GLN	THR	conflict	UNP B4Y886
5	315	ASN	SER	conflict	UNP B4Y886
5	417	GLN	THR	conflict	UNP B4Y886
6	315	ASN	SER	conflict	UNP B4Y886
6	417	GLN	THR	conflict	UNP B4Y886
7	315	ASN	SER	conflict	UNP B4Y886
7	417	GLN	THR	conflict	UNP B4Y886
8	315	ASN	SER	conflict	UNP B4Y886
8	417	GLN	THR	conflict	UNP B4Y886

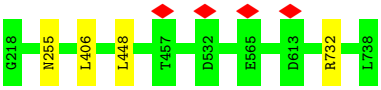
3 Residue-property plots (i)

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: Capsid protein VP1

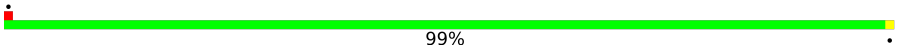
Chain A:

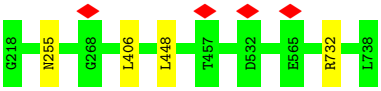




- Molecule 1: Capsid protein VP1

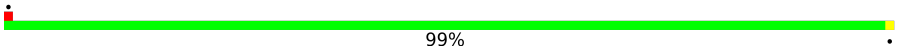
Chain B:

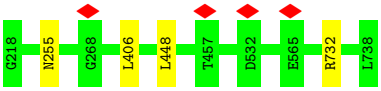




- Molecule 1: Capsid protein VP1

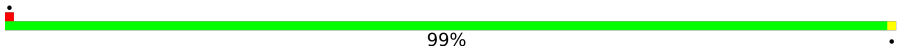
Chain C:

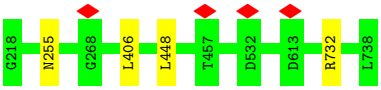




- Molecule 1: Capsid protein VP1

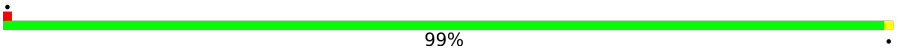
Chain D:

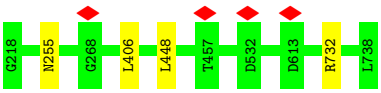




- Molecule 1: Capsid protein VP1

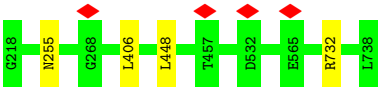
Chain E:





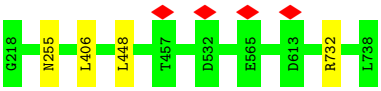
• Molecule 1: Capsid protein VP1

Chain F: 99%



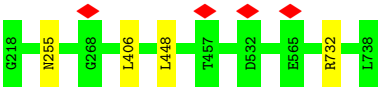
• Molecule 1: Capsid protein VP1

Chain G: 99%



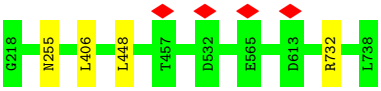
• Molecule 1: Capsid protein VP1

Chain H: 99%



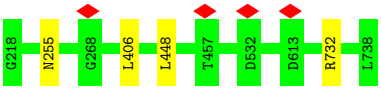
• Molecule 1: Capsid protein VP1

Chain I: 99%



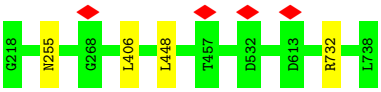
• Molecule 1: Capsid protein VP1

Chain J: 99%



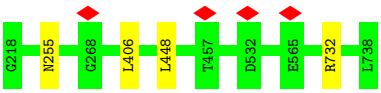
• Molecule 1: Capsid protein VP1

Chain K: 99%

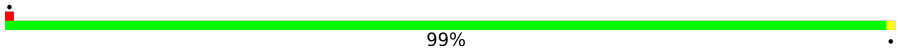


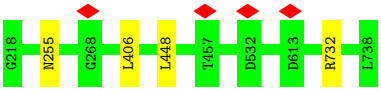
• Molecule 1: Capsid protein VP1

Chain L: 99%

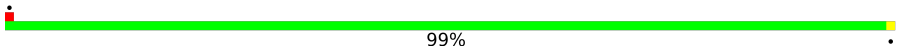


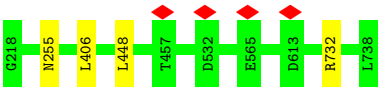
• Molecule 1: Capsid protein VP1

Chain M: 

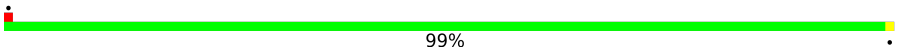


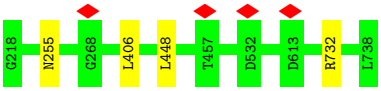
• Molecule 1: Capsid protein VP1

Chain N: 

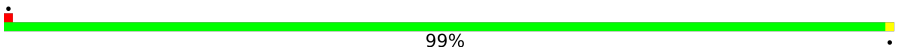


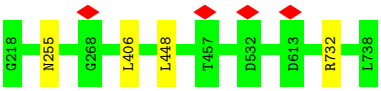
• Molecule 1: Capsid protein VP1

Chain O: 

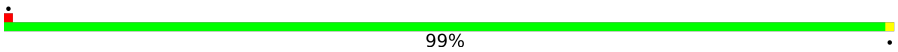


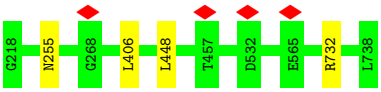
• Molecule 1: Capsid protein VP1

Chain P: 

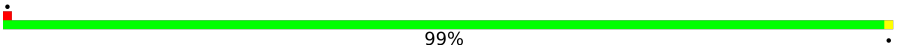


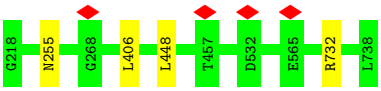
• Molecule 1: Capsid protein VP1

Chain Q: 



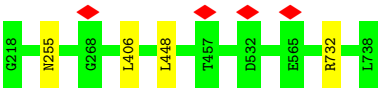
• Molecule 1: Capsid protein VP1

Chain R: 



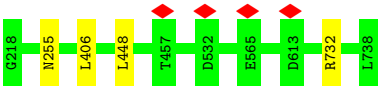
• Molecule 1: Capsid protein VP1

Chain S: 99%



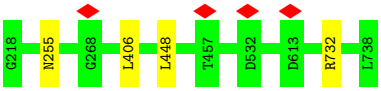
• Molecule 1: Capsid protein VP1

Chain T: 99%



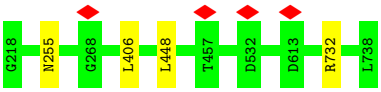
• Molecule 1: Capsid protein VP1

Chain U: 99%



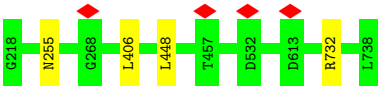
• Molecule 1: Capsid protein VP1

Chain V: 99%



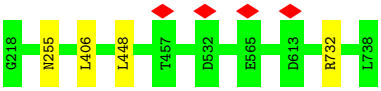
• Molecule 1: Capsid protein VP1

Chain W: 99%



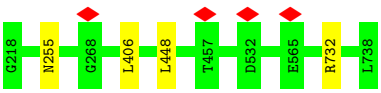
• Molecule 1: Capsid protein VP1

Chain X: 99%



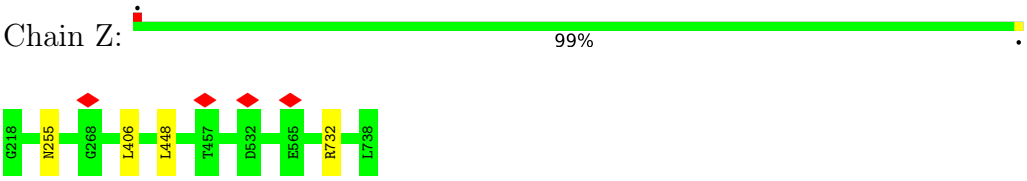
• Molecule 1: Capsid protein VP1

Chain Y: 99%



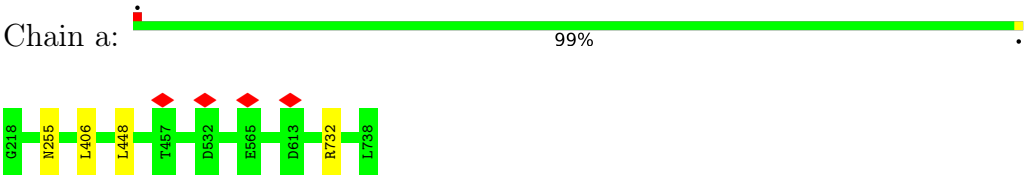
• Molecule 1: Capsid protein VP1

Chain Z:



• Molecule 1: Capsid protein VP1

Chain a:



• Molecule 1: Capsid protein VP1

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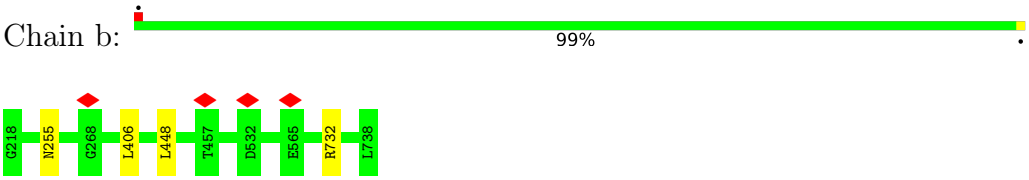

• Molecule 1: Capsid protein VP1

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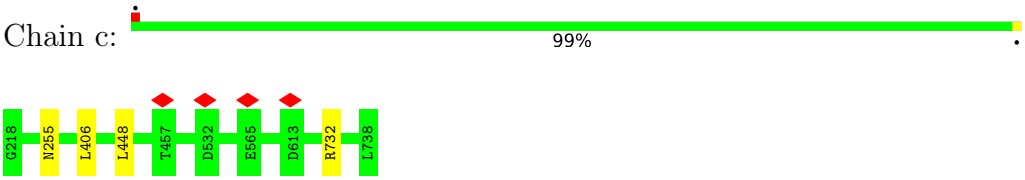
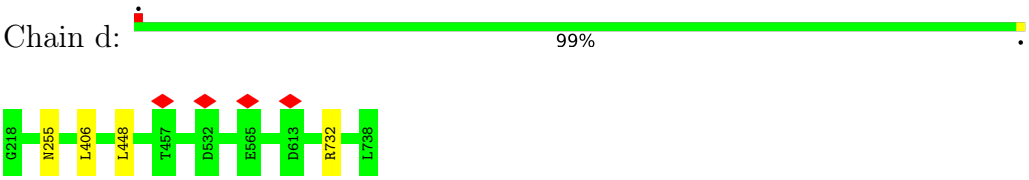


• Molecule 1: Capsid protein VP1

Chain d:



• Molecule 1: Capsid protein VP1

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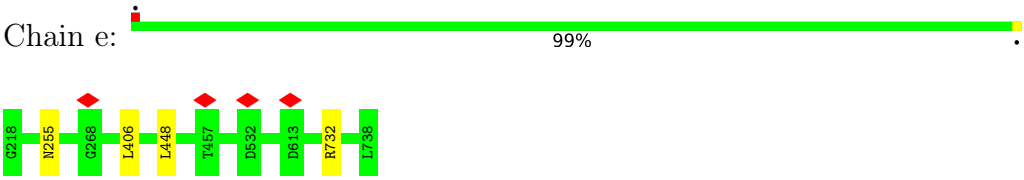
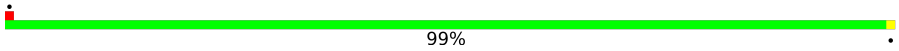
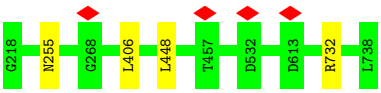


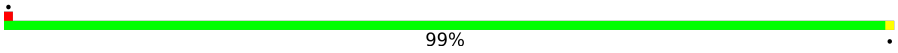
• Molecule 1: Capsid protein VP1

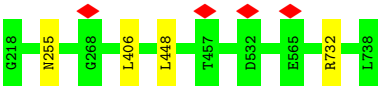
Chain f:



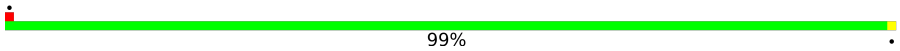


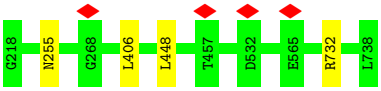
• Molecule 1: Capsid protein VP1

Chain g: 

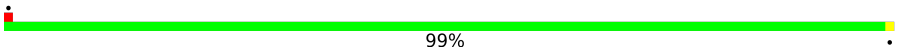


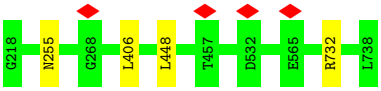
• Molecule 1: Capsid protein VP1

Chain h: 

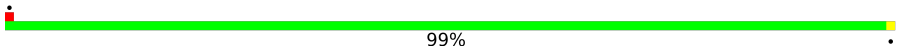


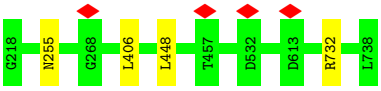
• Molecule 1: Capsid protein VP1

Chain i: 

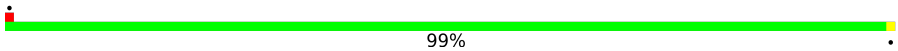


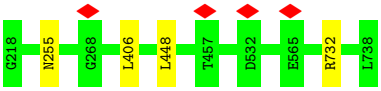
• Molecule 1: Capsid protein VP1

Chain j: 

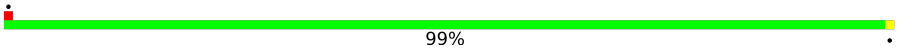


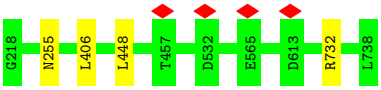
• Molecule 1: Capsid protein VP1

Chain k: 



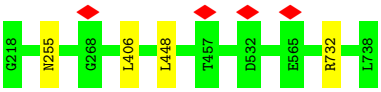
• Molecule 1: Capsid protein VP1

Chain l: 



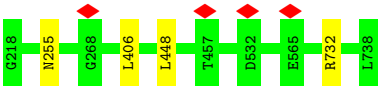
• Molecule 1: Capsid protein VP1

Chain m: 99%



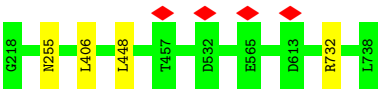
• Molecule 1: Capsid protein VP1

Chain n: 99%



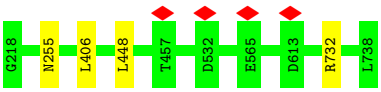
• Molecule 1: Capsid protein VP1

Chain o: 99%



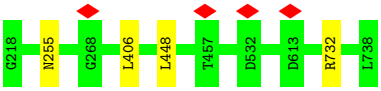
• Molecule 1: Capsid protein VP1

Chain p: 99%



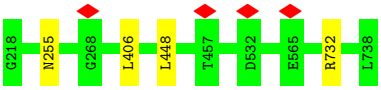
• Molecule 1: Capsid protein VP1

Chain q: 99%



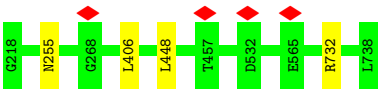
• Molecule 1: Capsid protein VP1

Chain r: 99%

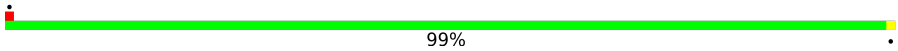


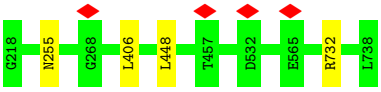
• Molecule 1: Capsid protein VP1

Chain s: 99%

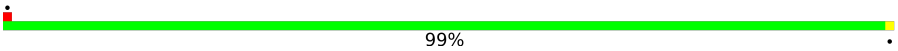


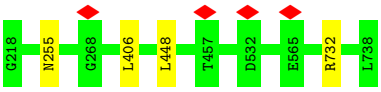
• Molecule 1: Capsid protein VP1

Chain t: 

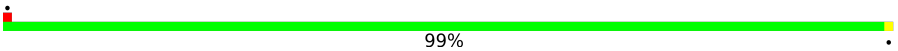


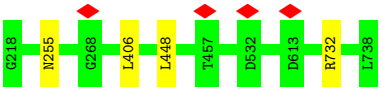
• Molecule 1: Capsid protein VP1

Chain u: 

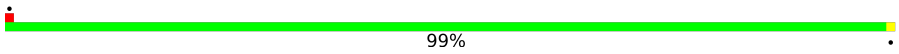


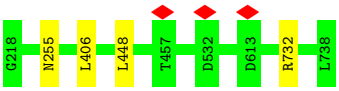
• Molecule 1: Capsid protein VP1

Chain v: 

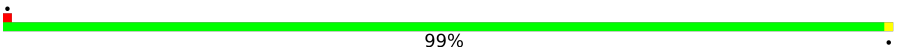


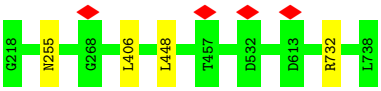
• Molecule 1: Capsid protein VP1

Chain w: 

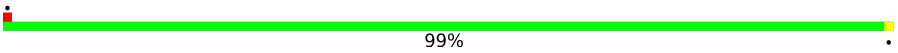


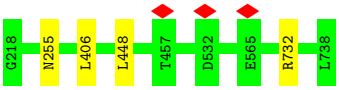
• Molecule 1: Capsid protein VP1

Chain x: 



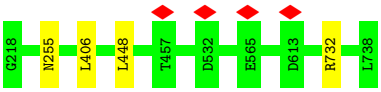
• Molecule 1: Capsid protein VP1

Chain y: 



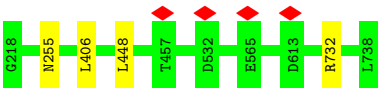
• Molecule 1: Capsid protein VP1

Chain z: 99%



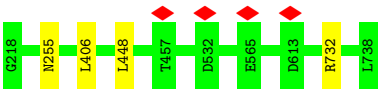
• Molecule 1: Capsid protein VP1

Chain 1: 99%



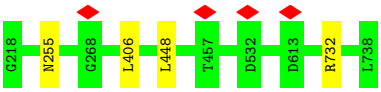
• Molecule 1: Capsid protein VP1

Chain 2: 99%



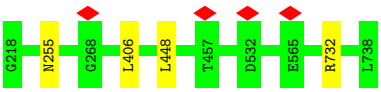
• Molecule 1: Capsid protein VP1

Chain 3: 99%



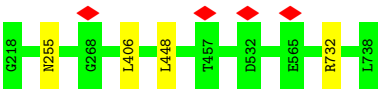
• Molecule 1: Capsid protein VP1

Chain 4: 99%



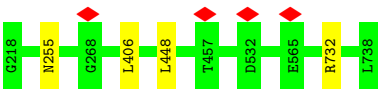
• Molecule 1: Capsid protein VP1

Chain 5: 99%



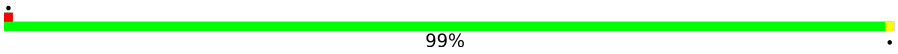
• Molecule 1: Capsid protein VP1

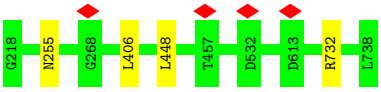
Chain 6: 99%



• Molecule 1: Capsid protein VP1

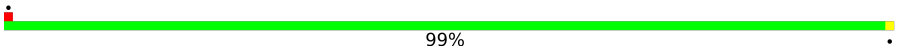
Chain 7:

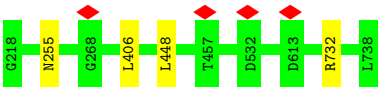




• Molecule 1: Capsid protein VP1

Chain 8:





4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, I	Depositor
Number of particles used	52912	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 ($e^-/Å^2$)	67	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	DIRECT ELECTRON DE-20 (5k x 3k)	Depositor
Maximum map value	18.937	Depositor
Minimum map value	-11.750	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	1.000	Depositor
Recommended contour level	1.0	Depositor
Map size (Å)	384.237, 384.237, 384.237	wwPDB
Map dimensions	399, 399, 399	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.963, 0.963, 0.963	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

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	1	0.52	0/4261	0.55	0/5810
1	2	0.52	0/4261	0.55	0/5810
1	3	0.52	0/4261	0.55	0/5810
1	4	0.52	0/4261	0.55	0/5810
1	5	0.52	0/4261	0.55	0/5810
1	6	0.52	0/4261	0.55	0/5810
1	7	0.52	0/4261	0.55	0/5810
1	8	0.52	0/4261	0.55	0/5810
1	A	0.52	0/4261	0.55	0/5810
1	B	0.52	0/4261	0.55	0/5810
1	C	0.52	0/4261	0.55	0/5810
1	D	0.52	0/4261	0.55	0/5810
1	E	0.52	0/4261	0.55	0/5810
1	F	0.52	0/4261	0.55	0/5810
1	G	0.52	0/4261	0.55	0/5810
1	H	0.52	0/4261	0.55	0/5810
1	I	0.52	0/4261	0.55	0/5810
1	J	0.52	0/4261	0.55	0/5810
1	K	0.52	0/4261	0.55	0/5810
1	L	0.52	0/4261	0.55	0/5810
1	M	0.52	0/4261	0.55	0/5810
1	N	0.52	0/4261	0.55	0/5810
1	O	0.52	0/4261	0.55	0/5810
1	P	0.52	0/4261	0.55	0/5810
1	Q	0.52	0/4261	0.55	0/5810
1	R	0.52	0/4261	0.55	0/5810
1	S	0.52	0/4261	0.55	0/5810
1	T	0.52	0/4261	0.55	0/5810
1	U	0.52	0/4261	0.55	0/5810
1	V	0.52	0/4261	0.55	0/5810
1	W	0.52	0/4261	0.55	0/5810
1	X	0.52	0/4261	0.55	0/5810
1	Y	0.52	0/4261	0.55	0/5810
1	Z	0.52	0/4261	0.55	0/5810

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
1	a	0.52	0/4261	0.55	0/5810
1	b	0.52	0/4261	0.55	0/5810
1	c	0.52	0/4261	0.55	0/5810
1	d	0.52	0/4261	0.55	0/5810
1	e	0.52	0/4261	0.55	0/5810
1	f	0.52	0/4261	0.55	0/5810
1	g	0.52	0/4261	0.55	0/5810
1	h	0.52	0/4261	0.55	0/5810
1	i	0.52	0/4261	0.55	0/5810
1	j	0.52	0/4261	0.55	0/5810
1	k	0.52	0/4261	0.55	0/5810
1	l	0.52	0/4261	0.55	0/5810
1	m	0.52	0/4261	0.55	0/5810
1	n	0.52	0/4261	0.55	0/5810
1	o	0.52	0/4261	0.55	0/5810
1	p	0.52	0/4261	0.55	0/5810
1	q	0.52	0/4261	0.55	0/5810
1	r	0.52	0/4261	0.55	0/5810
1	s	0.52	0/4261	0.55	0/5810
1	t	0.52	0/4261	0.55	0/5810
1	u	0.52	0/4261	0.55	0/5810
1	v	0.52	0/4261	0.55	0/5810
1	w	0.52	0/4261	0.55	0/5810
1	x	0.52	0/4261	0.55	0/5810
1	y	0.52	0/4261	0.55	0/5810
1	z	0.52	0/4261	0.55	0/5810
All	All	0.52	0/255660	0.55	0/348600

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)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

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	1	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	2	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	3	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	4	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	5	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	6	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	7	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	8	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	A	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	B	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	C	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	D	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	E	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	F	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	G	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	H	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	I	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	J	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	K	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	L	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	M	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	N	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	O	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	P	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	Q	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	R	519/521 (100%)	501 (96%)	17 (3%)	1 (0%)	47	78
1	S	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	T	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	U	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	V	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	W	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	X	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	Y	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	Z	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	a	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	b	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	c	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	d	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	e	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	f	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	g	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	h	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	i	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	j	519/521 (100%)	501 (96%)	17 (3%)	1 (0%)	47	78
1	k	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	l	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	m	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	n	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	o	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	p	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	q	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	r	519/521 (100%)	501 (96%)	17 (3%)	1 (0%)	47	78
1	s	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	t	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	u	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	v	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	w	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	x	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	y	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
1	z	519/521 (100%)	500 (96%)	18 (4%)	1 (0%)	47	78
All	All	31140/31260 (100%)	30003 (96%)	1077 (4%)	60 (0%)	50	78

All (60) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	255	ASN
1	B	255	ASN
1	C	255	ASN
1	D	255	ASN
1	E	255	ASN
1	F	255	ASN
1	G	255	ASN
1	H	255	ASN
1	I	255	ASN
1	J	255	ASN
1	K	255	ASN
1	L	255	ASN
1	M	255	ASN
1	N	255	ASN
1	O	255	ASN
1	P	255	ASN
1	Q	255	ASN
1	R	255	ASN
1	S	255	ASN
1	T	255	ASN
1	U	255	ASN
1	V	255	ASN
1	W	255	ASN
1	X	255	ASN
1	Y	255	ASN
1	Z	255	ASN
1	a	255	ASN
1	b	255	ASN
1	c	255	ASN
1	d	255	ASN
1	e	255	ASN
1	f	255	ASN

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Mol	Chain	Res	Type
1	g	255	ASN
1	h	255	ASN
1	i	255	ASN
1	j	255	ASN
1	k	255	ASN
1	l	255	ASN
1	m	255	ASN
1	n	255	ASN
1	o	255	ASN
1	p	255	ASN
1	q	255	ASN
1	r	255	ASN
1	s	255	ASN
1	t	255	ASN
1	u	255	ASN
1	v	255	ASN
1	w	255	ASN
1	x	255	ASN
1	y	255	ASN
1	z	255	ASN
1	1	255	ASN
1	2	255	ASN
1	3	255	ASN
1	4	255	ASN
1	5	255	ASN
1	6	255	ASN
1	7	255	ASN
1	8	255	ASN

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	1	454/454 (100%)	451 (99%)	3 (1%)	84 92
1	2	454/454 (100%)	451 (99%)	3 (1%)	84 92
1	3	454/454 (100%)	451 (99%)	3 (1%)	84 92

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	4	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	5	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	6	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	7	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	8	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	A	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	B	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	C	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	D	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	E	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	F	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	G	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	H	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	I	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	J	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	K	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	L	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	M	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	N	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	O	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	P	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	Q	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	R	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	S	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	T	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	U	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	V	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	W	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	X	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	Y	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	Z	454/454 (100%)	451 (99%)	3 (1%)	84	92

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	a	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	b	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	c	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	d	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	e	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	f	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	g	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	h	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	i	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	j	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	k	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	l	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	m	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	n	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	o	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	p	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	q	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	r	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	s	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	t	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	u	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	v	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	w	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	x	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	y	454/454 (100%)	451 (99%)	3 (1%)	84	92
1	z	454/454 (100%)	451 (99%)	3 (1%)	84	92
All	All	27240/27240 (100%)	27060 (99%)	180 (1%)	84	92

All (180) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	406	LEU
1	A	448	LEU

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Mol	Chain	Res	Type
1	A	732	ARG
1	B	406	LEU
1	B	448	LEU
1	B	732	ARG
1	C	406	LEU
1	C	448	LEU
1	C	732	ARG
1	D	406	LEU
1	D	448	LEU
1	D	732	ARG
1	E	406	LEU
1	E	448	LEU
1	E	732	ARG
1	F	406	LEU
1	F	448	LEU
1	F	732	ARG
1	G	406	LEU
1	G	448	LEU
1	G	732	ARG
1	H	406	LEU
1	H	448	LEU
1	H	732	ARG
1	I	406	LEU
1	I	448	LEU
1	I	732	ARG
1	J	406	LEU
1	J	448	LEU
1	J	732	ARG
1	K	406	LEU
1	K	448	LEU
1	K	732	ARG
1	L	406	LEU
1	L	448	LEU
1	L	732	ARG
1	M	406	LEU
1	M	448	LEU
1	M	732	ARG
1	N	406	LEU
1	N	448	LEU
1	N	732	ARG
1	O	406	LEU
1	O	448	LEU

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Mol	Chain	Res	Type
1	O	732	ARG
1	P	406	LEU
1	P	448	LEU
1	P	732	ARG
1	Q	406	LEU
1	Q	448	LEU
1	Q	732	ARG
1	R	406	LEU
1	R	448	LEU
1	R	732	ARG
1	S	406	LEU
1	S	448	LEU
1	S	732	ARG
1	T	406	LEU
1	T	448	LEU
1	T	732	ARG
1	U	406	LEU
1	U	448	LEU
1	U	732	ARG
1	V	406	LEU
1	V	448	LEU
1	V	732	ARG
1	W	406	LEU
1	W	448	LEU
1	W	732	ARG
1	X	406	LEU
1	X	448	LEU
1	X	732	ARG
1	Y	406	LEU
1	Y	448	LEU
1	Y	732	ARG
1	Z	406	LEU
1	Z	448	LEU
1	Z	732	ARG
1	a	406	LEU
1	a	448	LEU
1	a	732	ARG
1	b	406	LEU
1	b	448	LEU
1	b	732	ARG
1	c	406	LEU
1	c	448	LEU

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Mol	Chain	Res	Type
1	c	732	ARG
1	d	406	LEU
1	d	448	LEU
1	d	732	ARG
1	e	406	LEU
1	e	448	LEU
1	e	732	ARG
1	f	406	LEU
1	f	448	LEU
1	f	732	ARG
1	g	406	LEU
1	g	448	LEU
1	g	732	ARG
1	h	406	LEU
1	h	448	LEU
1	h	732	ARG
1	i	406	LEU
1	i	448	LEU
1	i	732	ARG
1	j	406	LEU
1	j	448	LEU
1	j	732	ARG
1	k	406	LEU
1	k	448	LEU
1	k	732	ARG
1	l	406	LEU
1	l	448	LEU
1	l	732	ARG
1	m	406	LEU
1	m	448	LEU
1	m	732	ARG
1	n	406	LEU
1	n	448	LEU
1	n	732	ARG
1	o	406	LEU
1	o	448	LEU
1	o	732	ARG
1	p	406	LEU
1	p	448	LEU
1	p	732	ARG
1	q	406	LEU
1	q	448	LEU

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Mol	Chain	Res	Type
1	q	732	ARG
1	r	406	LEU
1	r	448	LEU
1	r	732	ARG
1	s	406	LEU
1	s	448	LEU
1	s	732	ARG
1	t	406	LEU
1	t	448	LEU
1	t	732	ARG
1	u	406	LEU
1	u	448	LEU
1	u	732	ARG
1	v	406	LEU
1	v	448	LEU
1	v	732	ARG
1	w	406	LEU
1	w	448	LEU
1	w	732	ARG
1	x	406	LEU
1	x	448	LEU
1	x	732	ARG
1	y	406	LEU
1	y	448	LEU
1	y	732	ARG
1	z	406	LEU
1	z	448	LEU
1	z	732	ARG
1	1	406	LEU
1	1	448	LEU
1	1	732	ARG
1	2	406	LEU
1	2	448	LEU
1	2	732	ARG
1	3	406	LEU
1	3	448	LEU
1	3	732	ARG
1	4	406	LEU
1	4	448	LEU
1	4	732	ARG
1	5	406	LEU
1	5	448	LEU

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Mol	Chain	Res	Type
1	5	732	ARG
1	6	406	LEU
1	6	448	LEU
1	6	732	ARG
1	7	406	LEU
1	7	448	LEU
1	7	732	ARG
1	8	406	LEU
1	8	448	LEU
1	8	732	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (780) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	322	GLN
1	A	328	GLN
1	A	344	GLN
1	A	404	GLN
1	A	431	GLN
1	A	587	GLN
1	A	597	ASN
1	A	601	GLN
1	A	611	ASN
1	A	626	HIS
1	A	653	ASN
1	A	675	GLN
1	A	737	ASN
1	B	322	GLN
1	B	328	GLN
1	B	344	GLN
1	B	404	GLN
1	B	431	GLN
1	B	587	GLN
1	B	597	ASN
1	B	601	GLN
1	B	611	ASN
1	B	626	HIS
1	B	653	ASN
1	B	675	GLN
1	B	737	ASN
1	C	322	GLN
1	C	328	GLN

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Mol	Chain	Res	Type
1	C	344	GLN
1	C	404	GLN
1	C	431	GLN
1	C	587	GLN
1	C	597	ASN
1	C	601	GLN
1	C	611	ASN
1	C	626	HIS
1	C	653	ASN
1	C	675	GLN
1	C	737	ASN
1	D	322	GLN
1	D	328	GLN
1	D	344	GLN
1	D	404	GLN
1	D	431	GLN
1	D	587	GLN
1	D	597	ASN
1	D	601	GLN
1	D	611	ASN
1	D	626	HIS
1	D	653	ASN
1	D	675	GLN
1	D	737	ASN
1	E	322	GLN
1	E	328	GLN
1	E	344	GLN
1	E	404	GLN
1	E	431	GLN
1	E	587	GLN
1	E	597	ASN
1	E	601	GLN
1	E	611	ASN
1	E	626	HIS
1	E	653	ASN
1	E	675	GLN
1	E	737	ASN
1	F	322	GLN
1	F	328	GLN
1	F	344	GLN
1	F	404	GLN
1	F	431	GLN

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Mol	Chain	Res	Type
1	F	587	GLN
1	F	597	ASN
1	F	601	GLN
1	F	611	ASN
1	F	626	HIS
1	F	653	ASN
1	F	675	GLN
1	F	737	ASN
1	G	322	GLN
1	G	328	GLN
1	G	344	GLN
1	G	404	GLN
1	G	431	GLN
1	G	587	GLN
1	G	597	ASN
1	G	601	GLN
1	G	611	ASN
1	G	626	HIS
1	G	653	ASN
1	G	675	GLN
1	G	737	ASN
1	H	322	GLN
1	H	328	GLN
1	H	344	GLN
1	H	404	GLN
1	H	431	GLN
1	H	587	GLN
1	H	597	ASN
1	H	601	GLN
1	H	611	ASN
1	H	626	HIS
1	H	653	ASN
1	H	675	GLN
1	H	737	ASN
1	I	322	GLN
1	I	328	GLN
1	I	344	GLN
1	I	404	GLN
1	I	431	GLN
1	I	587	GLN
1	I	597	ASN
1	I	601	GLN

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Mol	Chain	Res	Type
1	I	611	ASN
1	I	626	HIS
1	I	653	ASN
1	I	675	GLN
1	I	737	ASN
1	J	322	GLN
1	J	328	GLN
1	J	344	GLN
1	J	404	GLN
1	J	431	GLN
1	J	587	GLN
1	J	597	ASN
1	J	601	GLN
1	J	611	ASN
1	J	626	HIS
1	J	653	ASN
1	J	675	GLN
1	J	737	ASN
1	K	322	GLN
1	K	328	GLN
1	K	344	GLN
1	K	404	GLN
1	K	431	GLN
1	K	587	GLN
1	K	597	ASN
1	K	601	GLN
1	K	611	ASN
1	K	626	HIS
1	K	653	ASN
1	K	675	GLN
1	K	737	ASN
1	L	322	GLN
1	L	328	GLN
1	L	344	GLN
1	L	404	GLN
1	L	431	GLN
1	L	587	GLN
1	L	597	ASN
1	L	601	GLN
1	L	611	ASN
1	L	626	HIS
1	L	653	ASN

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Mol	Chain	Res	Type
1	L	675	GLN
1	L	737	ASN
1	M	322	GLN
1	M	328	GLN
1	M	344	GLN
1	M	404	GLN
1	M	431	GLN
1	M	587	GLN
1	M	597	ASN
1	M	601	GLN
1	M	611	ASN
1	M	626	HIS
1	M	653	ASN
1	M	675	GLN
1	M	737	ASN
1	N	322	GLN
1	N	328	GLN
1	N	344	GLN
1	N	404	GLN
1	N	431	GLN
1	N	587	GLN
1	N	597	ASN
1	N	601	GLN
1	N	611	ASN
1	N	626	HIS
1	N	653	ASN
1	N	675	GLN
1	N	737	ASN
1	O	322	GLN
1	O	328	GLN
1	O	344	GLN
1	O	404	GLN
1	O	431	GLN
1	O	587	GLN
1	O	597	ASN
1	O	601	GLN
1	O	611	ASN
1	O	626	HIS
1	O	653	ASN
1	O	675	GLN
1	O	737	ASN
1	P	322	GLN

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Mol	Chain	Res	Type
1	P	328	GLN
1	P	344	GLN
1	P	404	GLN
1	P	431	GLN
1	P	587	GLN
1	P	597	ASN
1	P	601	GLN
1	P	611	ASN
1	P	626	HIS
1	P	653	ASN
1	P	675	GLN
1	P	737	ASN
1	Q	322	GLN
1	Q	328	GLN
1	Q	344	GLN
1	Q	404	GLN
1	Q	431	GLN
1	Q	587	GLN
1	Q	597	ASN
1	Q	601	GLN
1	Q	611	ASN
1	Q	626	HIS
1	Q	653	ASN
1	Q	675	GLN
1	Q	737	ASN
1	R	322	GLN
1	R	328	GLN
1	R	344	GLN
1	R	404	GLN
1	R	431	GLN
1	R	587	GLN
1	R	597	ASN
1	R	601	GLN
1	R	611	ASN
1	R	626	HIS
1	R	653	ASN
1	R	675	GLN
1	R	737	ASN
1	S	322	GLN
1	S	328	GLN
1	S	344	GLN
1	S	404	GLN

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Mol	Chain	Res	Type
1	S	431	GLN
1	S	587	GLN
1	S	597	ASN
1	S	601	GLN
1	S	611	ASN
1	S	626	HIS
1	S	653	ASN
1	S	675	GLN
1	S	737	ASN
1	T	322	GLN
1	T	328	GLN
1	T	344	GLN
1	T	404	GLN
1	T	431	GLN
1	T	587	GLN
1	T	597	ASN
1	T	601	GLN
1	T	611	ASN
1	T	626	HIS
1	T	653	ASN
1	T	675	GLN
1	T	737	ASN
1	U	322	GLN
1	U	328	GLN
1	U	344	GLN
1	U	404	GLN
1	U	431	GLN
1	U	587	GLN
1	U	597	ASN
1	U	601	GLN
1	U	611	ASN
1	U	626	HIS
1	U	653	ASN
1	U	675	GLN
1	U	737	ASN
1	V	322	GLN
1	V	328	GLN
1	V	344	GLN
1	V	404	GLN
1	V	431	GLN
1	V	587	GLN
1	V	597	ASN

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Mol	Chain	Res	Type
1	V	601	GLN
1	V	611	ASN
1	V	626	HIS
1	V	653	ASN
1	V	675	GLN
1	V	737	ASN
1	W	322	GLN
1	W	328	GLN
1	W	344	GLN
1	W	404	GLN
1	W	431	GLN
1	W	587	GLN
1	W	597	ASN
1	W	601	GLN
1	W	611	ASN
1	W	626	HIS
1	W	653	ASN
1	W	675	GLN
1	W	737	ASN
1	X	322	GLN
1	X	328	GLN
1	X	344	GLN
1	X	404	GLN
1	X	431	GLN
1	X	587	GLN
1	X	597	ASN
1	X	601	GLN
1	X	611	ASN
1	X	626	HIS
1	X	653	ASN
1	X	675	GLN
1	X	737	ASN
1	Y	322	GLN
1	Y	328	GLN
1	Y	344	GLN
1	Y	404	GLN
1	Y	431	GLN
1	Y	587	GLN
1	Y	597	ASN
1	Y	601	GLN
1	Y	611	ASN
1	Y	626	HIS

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Mol	Chain	Res	Type
1	Y	653	ASN
1	Y	675	GLN
1	Y	737	ASN
1	Z	322	GLN
1	Z	328	GLN
1	Z	344	GLN
1	Z	404	GLN
1	Z	431	GLN
1	Z	587	GLN
1	Z	597	ASN
1	Z	601	GLN
1	Z	611	ASN
1	Z	626	HIS
1	Z	653	ASN
1	Z	675	GLN
1	Z	737	ASN
1	a	322	GLN
1	a	328	GLN
1	a	344	GLN
1	a	404	GLN
1	a	431	GLN
1	a	587	GLN
1	a	597	ASN
1	a	601	GLN
1	a	611	ASN
1	a	626	HIS
1	a	653	ASN
1	a	675	GLN
1	a	737	ASN
1	b	322	GLN
1	b	328	GLN
1	b	344	GLN
1	b	404	GLN
1	b	431	GLN
1	b	587	GLN
1	b	597	ASN
1	b	601	GLN
1	b	611	ASN
1	b	626	HIS
1	b	653	ASN
1	b	675	GLN
1	b	737	ASN

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Mol	Chain	Res	Type
1	c	322	GLN
1	c	328	GLN
1	c	344	GLN
1	c	404	GLN
1	c	431	GLN
1	c	587	GLN
1	c	597	ASN
1	c	601	GLN
1	c	611	ASN
1	c	626	HIS
1	c	653	ASN
1	c	675	GLN
1	c	737	ASN
1	d	322	GLN
1	d	328	GLN
1	d	344	GLN
1	d	404	GLN
1	d	431	GLN
1	d	587	GLN
1	d	597	ASN
1	d	601	GLN
1	d	611	ASN
1	d	626	HIS
1	d	653	ASN
1	d	675	GLN
1	d	737	ASN
1	e	322	GLN
1	e	328	GLN
1	e	344	GLN
1	e	404	GLN
1	e	431	GLN
1	e	587	GLN
1	e	597	ASN
1	e	601	GLN
1	e	611	ASN
1	e	626	HIS
1	e	653	ASN
1	e	675	GLN
1	e	737	ASN
1	f	322	GLN
1	f	328	GLN
1	f	344	GLN

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Mol	Chain	Res	Type
1	f	404	GLN
1	f	431	GLN
1	f	587	GLN
1	f	597	ASN
1	f	601	GLN
1	f	611	ASN
1	f	626	HIS
1	f	653	ASN
1	f	675	GLN
1	f	737	ASN
1	g	322	GLN
1	g	328	GLN
1	g	344	GLN
1	g	404	GLN
1	g	431	GLN
1	g	587	GLN
1	g	597	ASN
1	g	601	GLN
1	g	611	ASN
1	g	626	HIS
1	g	653	ASN
1	g	675	GLN
1	g	737	ASN
1	h	322	GLN
1	h	328	GLN
1	h	344	GLN
1	h	404	GLN
1	h	431	GLN
1	h	587	GLN
1	h	597	ASN
1	h	601	GLN
1	h	611	ASN
1	h	626	HIS
1	h	653	ASN
1	h	675	GLN
1	h	737	ASN
1	i	322	GLN
1	i	328	GLN
1	i	344	GLN
1	i	404	GLN
1	i	431	GLN
1	i	587	GLN

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Mol	Chain	Res	Type
1	i	597	ASN
1	i	601	GLN
1	i	611	ASN
1	i	626	HIS
1	i	653	ASN
1	i	675	GLN
1	i	737	ASN
1	j	322	GLN
1	j	328	GLN
1	j	344	GLN
1	j	404	GLN
1	j	431	GLN
1	j	587	GLN
1	j	597	ASN
1	j	601	GLN
1	j	611	ASN
1	j	626	HIS
1	j	653	ASN
1	j	675	GLN
1	j	737	ASN
1	k	322	GLN
1	k	328	GLN
1	k	344	GLN
1	k	404	GLN
1	k	431	GLN
1	k	587	GLN
1	k	597	ASN
1	k	601	GLN
1	k	611	ASN
1	k	626	HIS
1	k	653	ASN
1	k	675	GLN
1	k	737	ASN
1	l	322	GLN
1	l	328	GLN
1	l	344	GLN
1	l	404	GLN
1	l	431	GLN
1	l	587	GLN
1	l	597	ASN
1	l	601	GLN
1	l	611	ASN

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Mol	Chain	Res	Type
1	l	626	HIS
1	l	653	ASN
1	l	675	GLN
1	l	737	ASN
1	m	322	GLN
1	m	328	GLN
1	m	344	GLN
1	m	404	GLN
1	m	431	GLN
1	m	587	GLN
1	m	597	ASN
1	m	601	GLN
1	m	611	ASN
1	m	626	HIS
1	m	653	ASN
1	m	675	GLN
1	m	737	ASN
1	n	322	GLN
1	n	328	GLN
1	n	344	GLN
1	n	404	GLN
1	n	431	GLN
1	n	587	GLN
1	n	597	ASN
1	n	601	GLN
1	n	611	ASN
1	n	626	HIS
1	n	653	ASN
1	n	675	GLN
1	n	737	ASN
1	o	322	GLN
1	o	328	GLN
1	o	344	GLN
1	o	404	GLN
1	o	431	GLN
1	o	587	GLN
1	o	597	ASN
1	o	601	GLN
1	o	611	ASN
1	o	626	HIS
1	o	653	ASN
1	o	675	GLN

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Mol	Chain	Res	Type
1	o	737	ASN
1	p	322	GLN
1	p	328	GLN
1	p	344	GLN
1	p	404	GLN
1	p	431	GLN
1	p	587	GLN
1	p	597	ASN
1	p	601	GLN
1	p	611	ASN
1	p	626	HIS
1	p	653	ASN
1	p	675	GLN
1	p	737	ASN
1	q	322	GLN
1	q	328	GLN
1	q	344	GLN
1	q	404	GLN
1	q	431	GLN
1	q	587	GLN
1	q	597	ASN
1	q	601	GLN
1	q	611	ASN
1	q	626	HIS
1	q	653	ASN
1	q	675	GLN
1	q	737	ASN
1	r	322	GLN
1	r	328	GLN
1	r	344	GLN
1	r	404	GLN
1	r	431	GLN
1	r	587	GLN
1	r	597	ASN
1	r	601	GLN
1	r	611	ASN
1	r	626	HIS
1	r	653	ASN
1	r	675	GLN
1	r	737	ASN
1	s	322	GLN
1	s	328	GLN

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Mol	Chain	Res	Type
1	s	344	GLN
1	s	404	GLN
1	s	431	GLN
1	s	587	GLN
1	s	597	ASN
1	s	601	GLN
1	s	611	ASN
1	s	626	HIS
1	s	653	ASN
1	s	675	GLN
1	s	737	ASN
1	t	322	GLN
1	t	328	GLN
1	t	344	GLN
1	t	404	GLN
1	t	431	GLN
1	t	587	GLN
1	t	597	ASN
1	t	601	GLN
1	t	611	ASN
1	t	626	HIS
1	t	653	ASN
1	t	675	GLN
1	t	737	ASN
1	u	322	GLN
1	u	328	GLN
1	u	344	GLN
1	u	404	GLN
1	u	431	GLN
1	u	587	GLN
1	u	597	ASN
1	u	601	GLN
1	u	611	ASN
1	u	626	HIS
1	u	653	ASN
1	u	675	GLN
1	u	737	ASN
1	v	322	GLN
1	v	328	GLN
1	v	344	GLN
1	v	404	GLN
1	v	431	GLN

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Mol	Chain	Res	Type
1	v	587	GLN
1	v	597	ASN
1	v	601	GLN
1	v	611	ASN
1	v	626	HIS
1	v	653	ASN
1	v	675	GLN
1	v	737	ASN
1	w	322	GLN
1	w	328	GLN
1	w	344	GLN
1	w	404	GLN
1	w	431	GLN
1	w	587	GLN
1	w	597	ASN
1	w	601	GLN
1	w	611	ASN
1	w	626	HIS
1	w	653	ASN
1	w	675	GLN
1	w	737	ASN
1	x	322	GLN
1	x	328	GLN
1	x	344	GLN
1	x	404	GLN
1	x	431	GLN
1	x	587	GLN
1	x	597	ASN
1	x	601	GLN
1	x	611	ASN
1	x	626	HIS
1	x	653	ASN
1	x	675	GLN
1	x	737	ASN
1	y	322	GLN
1	y	328	GLN
1	y	344	GLN
1	y	404	GLN
1	y	431	GLN
1	y	587	GLN
1	y	597	ASN
1	y	601	GLN

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Mol	Chain	Res	Type
1	y	611	ASN
1	y	626	HIS
1	y	653	ASN
1	y	675	GLN
1	y	737	ASN
1	z	322	GLN
1	z	328	GLN
1	z	344	GLN
1	z	404	GLN
1	z	431	GLN
1	z	587	GLN
1	z	597	ASN
1	z	601	GLN
1	z	611	ASN
1	z	626	HIS
1	z	653	ASN
1	z	675	GLN
1	z	737	ASN
1	1	322	GLN
1	1	328	GLN
1	1	344	GLN
1	1	404	GLN
1	1	431	GLN
1	1	587	GLN
1	1	597	ASN
1	1	601	GLN
1	1	611	ASN
1	1	626	HIS
1	1	653	ASN
1	1	675	GLN
1	1	737	ASN
1	2	322	GLN
1	2	328	GLN
1	2	344	GLN
1	2	404	GLN
1	2	431	GLN
1	2	587	GLN
1	2	597	ASN
1	2	601	GLN
1	2	611	ASN
1	2	626	HIS
1	2	653	ASN

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Mol	Chain	Res	Type
1	2	675	GLN
1	2	737	ASN
1	3	322	GLN
1	3	328	GLN
1	3	344	GLN
1	3	404	GLN
1	3	431	GLN
1	3	587	GLN
1	3	597	ASN
1	3	601	GLN
1	3	611	ASN
1	3	626	HIS
1	3	653	ASN
1	3	675	GLN
1	3	737	ASN
1	4	322	GLN
1	4	328	GLN
1	4	344	GLN
1	4	404	GLN
1	4	431	GLN
1	4	587	GLN
1	4	597	ASN
1	4	601	GLN
1	4	611	ASN
1	4	626	HIS
1	4	653	ASN
1	4	675	GLN
1	4	737	ASN
1	5	322	GLN
1	5	328	GLN
1	5	344	GLN
1	5	404	GLN
1	5	431	GLN
1	5	587	GLN
1	5	597	ASN
1	5	601	GLN
1	5	611	ASN
1	5	626	HIS
1	5	653	ASN
1	5	675	GLN
1	5	737	ASN
1	6	322	GLN

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Mol	Chain	Res	Type
1	6	328	GLN
1	6	344	GLN
1	6	404	GLN
1	6	431	GLN
1	6	587	GLN
1	6	597	ASN
1	6	601	GLN
1	6	611	ASN
1	6	626	HIS
1	6	653	ASN
1	6	675	GLN
1	6	737	ASN
1	7	322	GLN
1	7	328	GLN
1	7	344	GLN
1	7	404	GLN
1	7	431	GLN
1	7	587	GLN
1	7	597	ASN
1	7	601	GLN
1	7	611	ASN
1	7	626	HIS
1	7	653	ASN
1	7	675	GLN
1	7	737	ASN
1	8	322	GLN
1	8	328	GLN
1	8	344	GLN
1	8	404	GLN
1	8	431	GLN
1	8	587	GLN
1	8	597	ASN
1	8	601	GLN
1	8	611	ASN
1	8	626	HIS
1	8	653	ASN
1	8	675	GLN
1	8	737	ASN

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 monosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

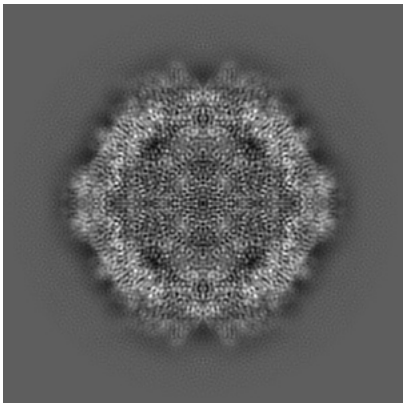
6 Map visualisation (i)

This section contains visualisations of the EMDB entry EMD-21017. These allow visual inspection of the internal detail of the map and identification of artifacts.

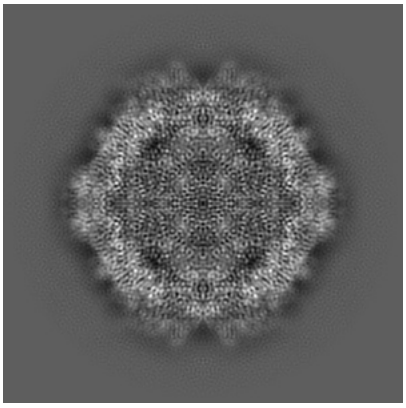
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections (i)

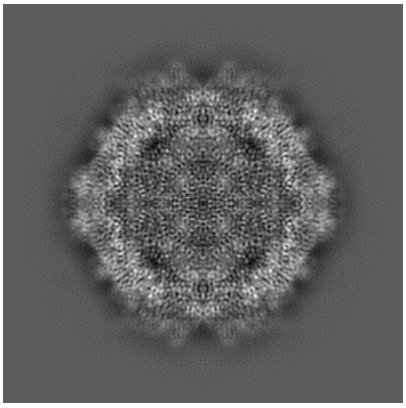
6.1.1 Primary map



X



Y

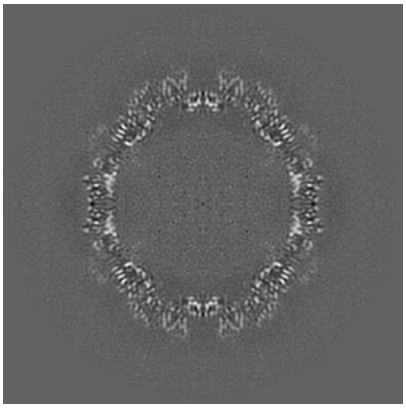


Z

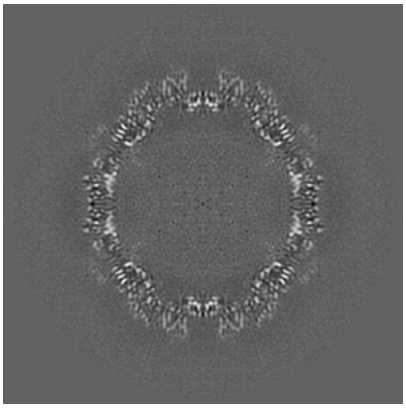
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

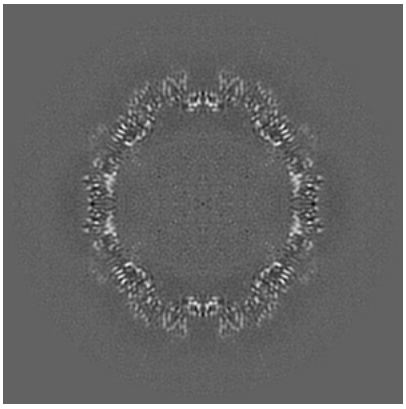
6.2.1 Primary map



X Index: 199



Y Index: 199

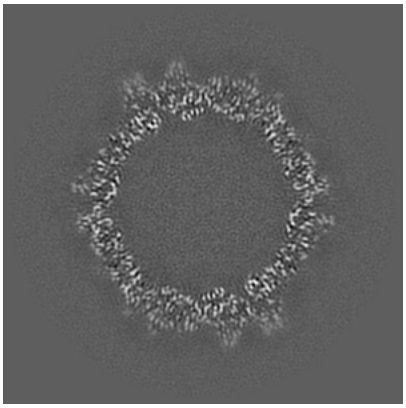


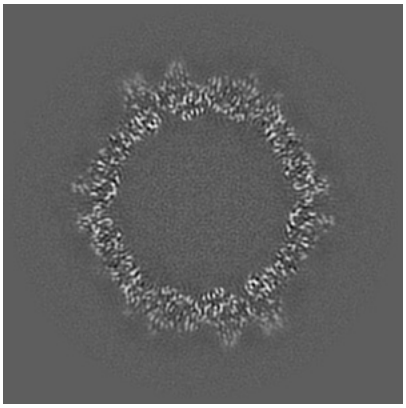
Z Index: 199

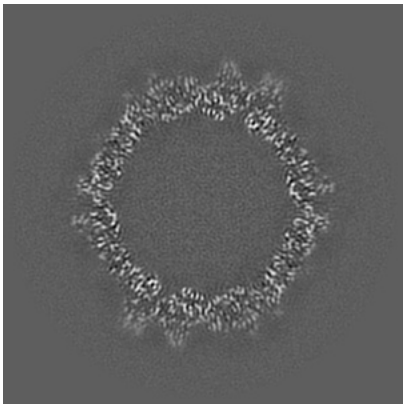
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

6.3.1 Primary map


X Index: 214

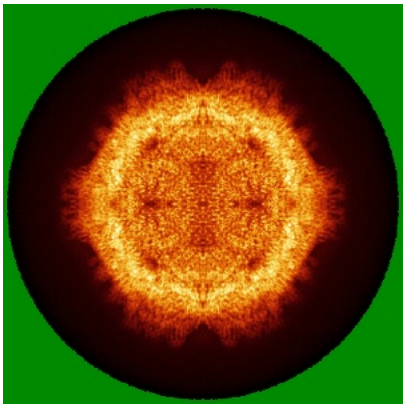

Y Index: 214

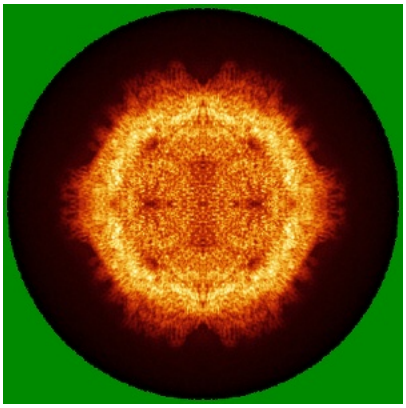

Z Index: 184

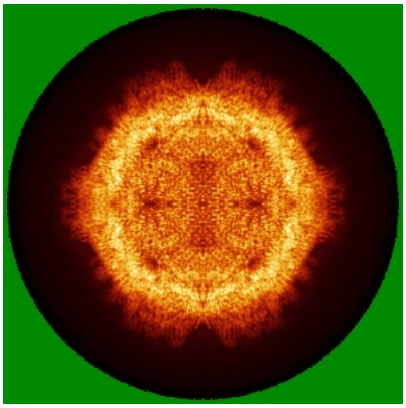
The images above show the largest variance slices of the map in three orthogonal directions.

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

6.4.1 Primary map


X

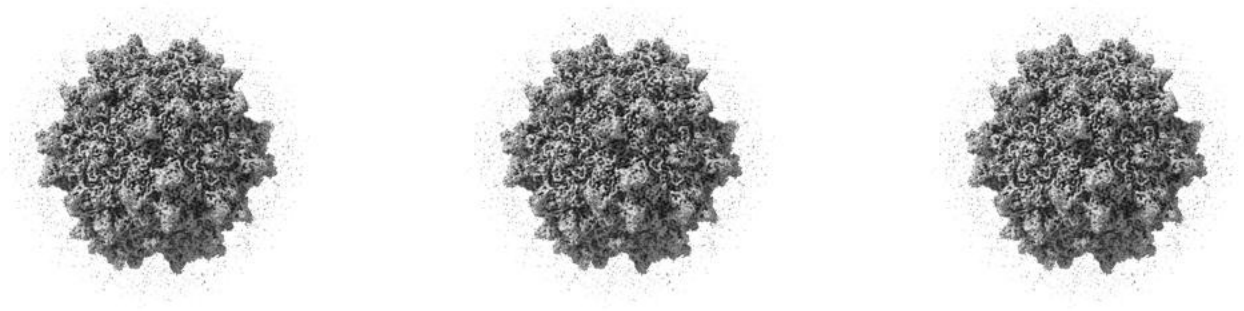

Y


Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 1.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

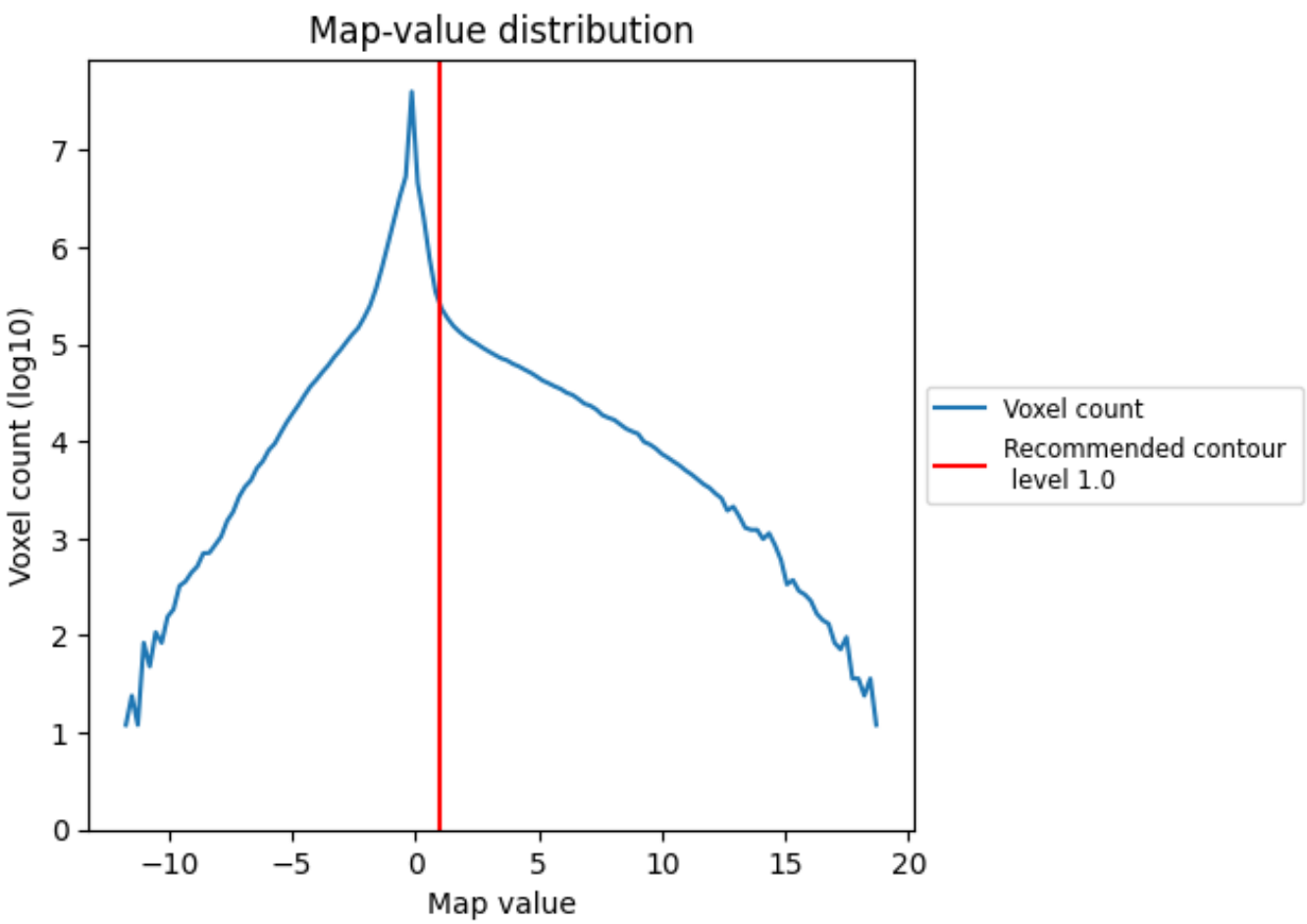
6.6 Mask visualisation (i)

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

7 Map analysis (i)

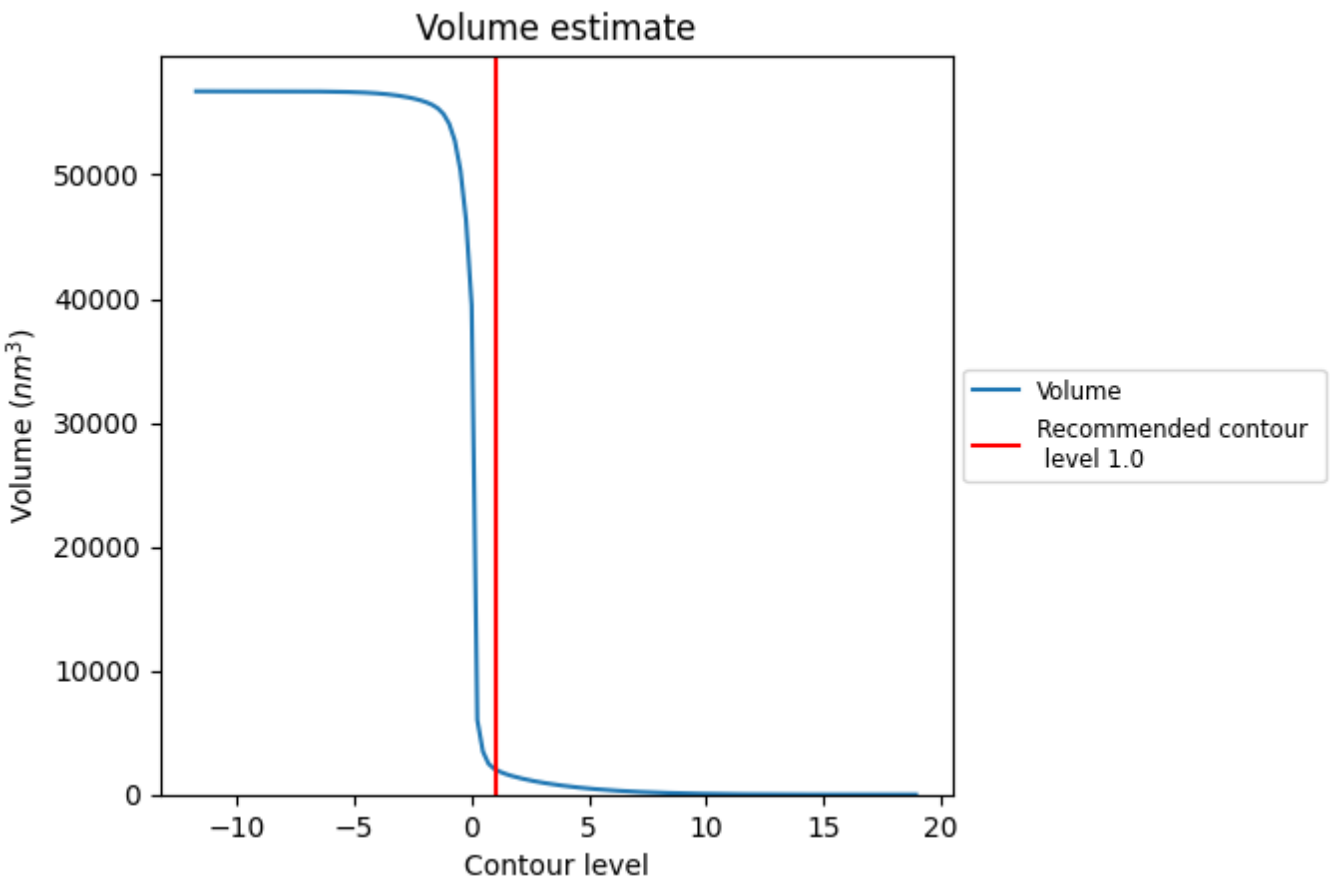
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution (i)



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

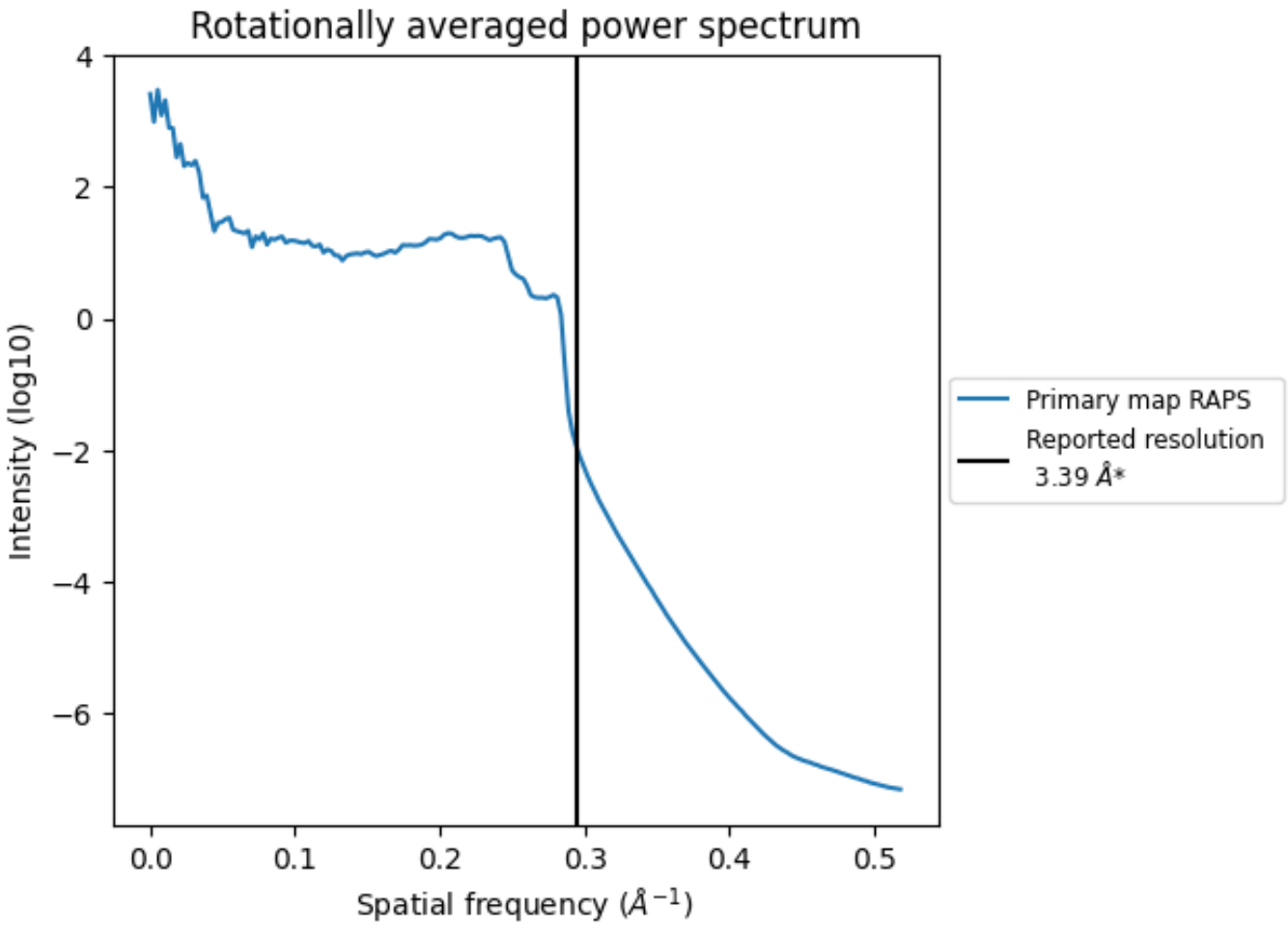
7.2 Volume estimate (i)



The volume at the recommended contour level is 2037 nm^3; this corresponds to an approximate mass of 1840 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 0.295 Å^{-1}

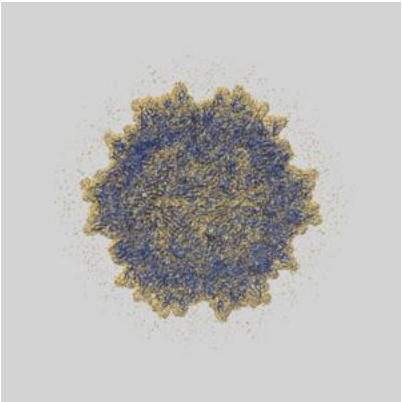
8 Fourier-Shell correlation (i)

This section was not generated. No FSC curve or half-maps provided.

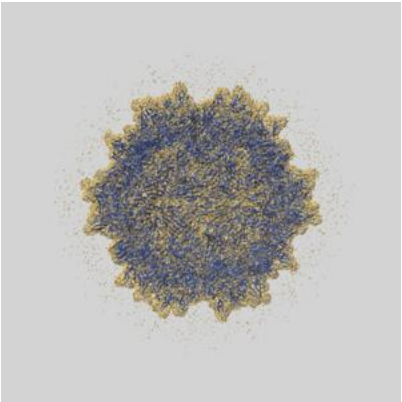
9 Map-model fit (i)

This section contains information regarding the fit between EMDB map EMD-21017 and PDB model 6V1T. Per-residue inclusion information can be found in section 3 on page 12.

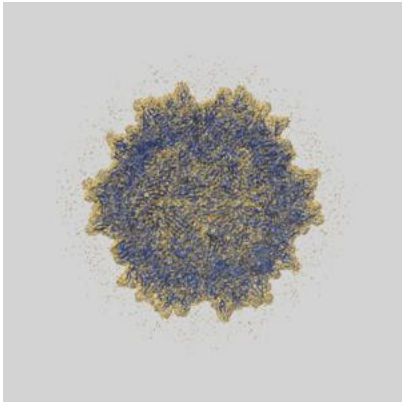
9.1 Map-model overlay (i)



X



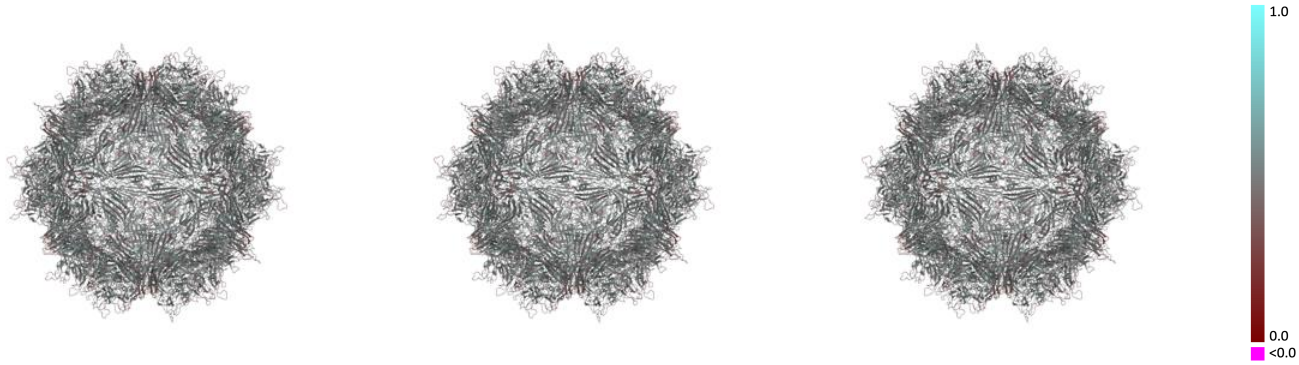
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 1.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

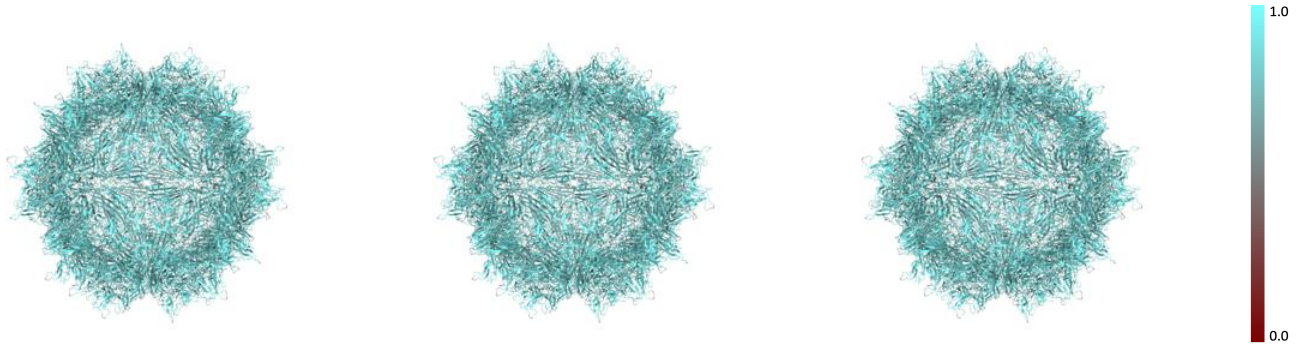
9.2 Q-score mapped to coordinate model (i)



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.

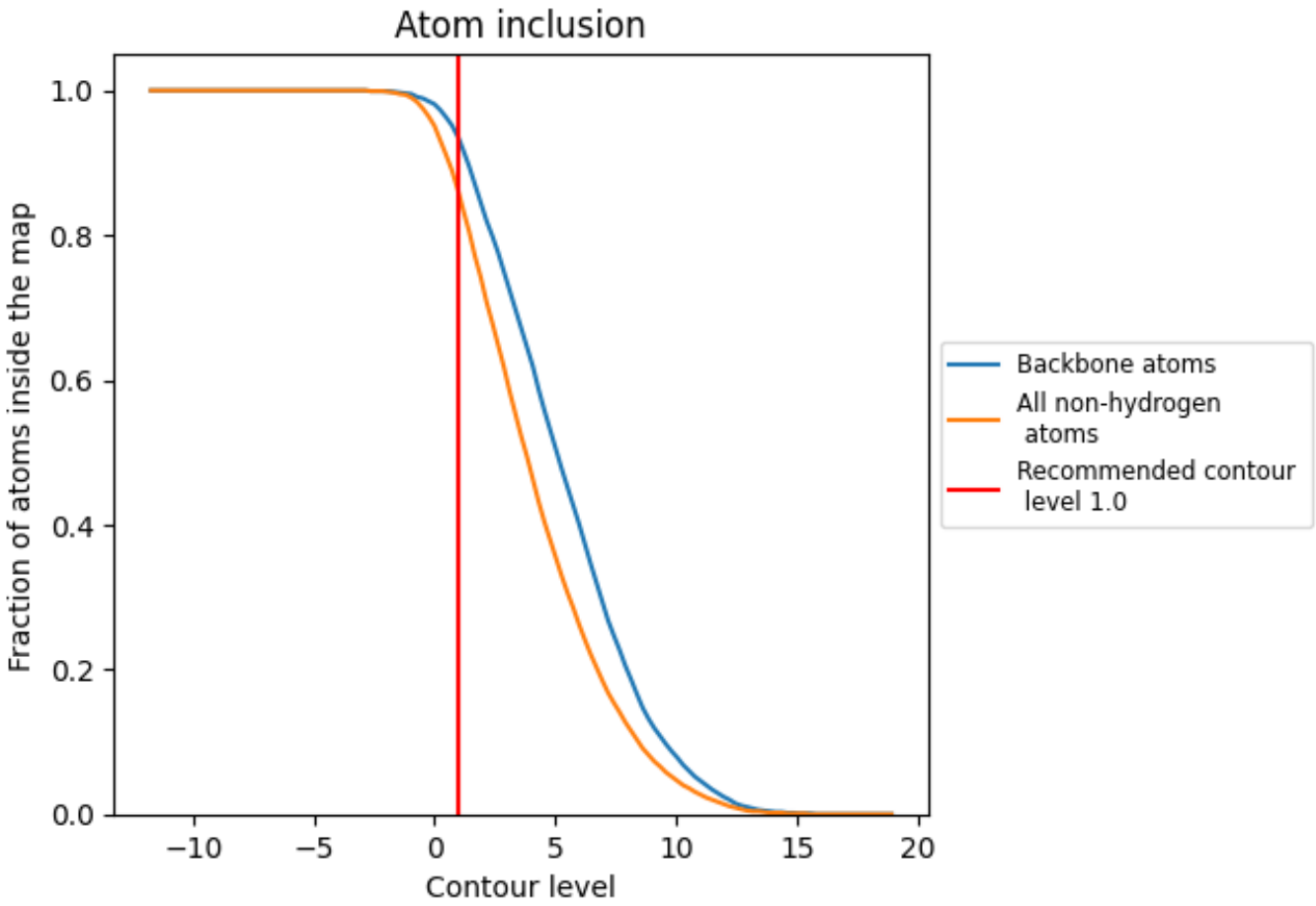
9.3 Atom inclusion mapped to coordinate model (i)



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 (1.0).

9.4 Atom inclusion (i)



At the recommended contour level, 93% of all backbone atoms, 86% 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 (1.0) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8590	0.4800
1	0.8620	0.4810
2	0.8620	0.4800
3	0.8590	0.4800
4	0.8590	0.4800
5	0.8590	0.4810
6	0.8600	0.4810
7	0.8590	0.4800
8	0.8580	0.4790
A	0.8620	0.4800
B	0.8590	0.4810
C	0.8590	0.4800
D	0.8580	0.4800
E	0.8590	0.4810
F	0.8600	0.4810
G	0.8620	0.4800
H	0.8590	0.4800
I	0.8620	0.4790
J	0.8590	0.4800
K	0.8580	0.4790
L	0.8590	0.4800
M	0.8590	0.4800
N	0.8570	0.4800
O	0.8590	0.4790
P	0.8570	0.4800
Q	0.8590	0.4790
R	0.8590	0.4800
S	0.8600	0.4810
T	0.8620	0.4790
U	0.8590	0.4810
V	0.8580	0.4800
W	0.8590	0.4780
X	0.8570	0.4800
Y	0.8590	0.4800
Z	0.8590	0.4780

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Chain	Atom inclusion	Q-score
a	0.8570	0.4800
b	0.8590	0.4820
c	0.8620	0.4800
d	0.8620	0.4790
e	0.8580	0.4800
f	0.8590	0.4800
g	0.8590	0.4810
h	0.8590	0.4820
i	0.8590	0.4810
j	0.8600	0.4790
k	0.8590	0.4810
l	0.8620	0.4790
m	0.8590	0.4790
n	0.8590	0.4790
o	0.8620	0.4810
p	0.8620	0.4810
q	0.8590	0.4780
r	0.8590	0.4790
s	0.8590	0.4800
t	0.8590	0.4810
u	0.8600	0.4810
v	0.8590	0.4800
w	0.8590	0.4800
x	0.8580	0.4780
y	0.8570	0.4800
z	0.8620	0.4820