



wwPDB EM Validation Summary Report ⓘ

Mar 5, 2026 – 01:16 PM UTC

PDB ID : 6U3Q / pdb_00006u3q
EMDB ID : EMD-20630
Title : The atomic structure of a human adeno-associated virus capsid isolate (AAVhu69/AAVv66)
Authors : Hsu, H.-L.; Brown, A.; Loveland, A.; Tai, P.; Korostelev, A.; Gao, G.
Deposited on : 2019-08-22
Resolution : 2.46 Å(reported)

This is a wwPDB EM Validation Summary Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

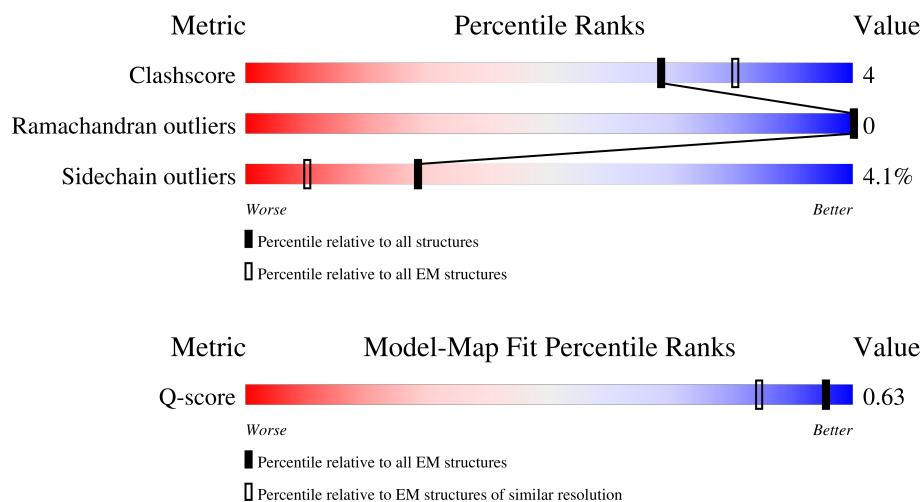
EMDB validation analysis : 0.0.1.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDb archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

1 Overall quality at a glance

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

The reported resolution of this entry is 2.46 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.



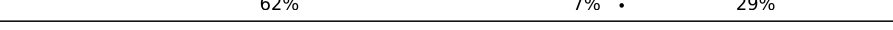
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	6014 (1.96 - 2.96)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	0	735	 63% 7% • 29%
1	1	735	 62% 8% • 29%
1	2	735	 63% 7% • 29%
1	3	735	 62% 7% • 29%

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Mol	Chain	Length	Quality of chain
1	4	735	
1	5	735	
1	6	735	
1	7	735	
1	A	735	
1	B	735	
1	C	735	
1	D	735	
1	E	735	
1	F	735	
1	G	735	
1	H	735	
1	I	735	
1	J	735	
1	K	735	
1	L	735	
1	M	735	
1	N	735	
1	O	735	
1	P	735	
1	Q	735	
1	R	735	
1	S	735	
1	T	735	
1	U	735	

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Mol	Chain	Length	Quality of chain
1	V	735	
1	W	735	
1	X	735	
1	Y	735	
1	Z	735	
1	a	735	
1	b	735	
1	c	735	
1	d	735	
1	e	735	
1	f	735	
1	g	735	
1	h	735	
1	i	735	
1	j	735	
1	k	735	
1	l	735	
1	m	735	
1	n	735	
1	o	735	
1	p	735	
1	q	735	
1	r	735	
1	s	735	
1	t	735	

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Mol	Chain	Length	Quality of chain
1	u	735	 62% 7% 29%
1	v	735	 62% 8% 29%
1	w	735	 62% 8% 29%
1	x	735	 62% 8% 29%
1	y	735	 62% 8% 29%
1	z	735	 62% 8% 29%

2 Entry composition

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
1	A	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	K	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	L	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	M	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	N	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	O	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	P	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	Q	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	R	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	S	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	T	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	B	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	U	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	V	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	W	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	X	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	Y	519	Total 4138	C 2605	N 716	O 803	S 14	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
1	Z	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	a	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	b	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	c	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	d	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	C	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	e	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	f	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	g	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	h	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	i	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	j	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	k	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	l	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	m	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	n	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	D	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	o	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	p	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	q	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	r	519	Total 4138	C 2605	N 716	O 803	S 14	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
1	s	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	t	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	u	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	v	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	w	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	x	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	E	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	y	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	z	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	0	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	1	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	2	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	3	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	4	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	5	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	6	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	7	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	F	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	G	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	H	519	Total 4138	C 2605	N 716	O 803	S 14	0	0
1	I	519	Total 4138	C 2605	N 716	O 803	S 14	0	0

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Mol	Chain	Residues	Atoms					AltConf	Trace
1	J	519	Total	C	N	O	S	0	0
			4138	2605	716	803	14		

There are 360 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	39	GLN	LYS	conflict	UNP Q670R6
A	164	GLN	ASN	conflict	UNP Q670R6
A	312	ASN	SER	conflict	UNP Q670R6
A	447	LYS	ARG	conflict	UNP Q670R6
A	450	ALA	THR	conflict	UNP Q670R6
A	593	THR	SER	conflict	UNP Q670R6
K	39	GLN	LYS	conflict	UNP Q670R6
K	164	GLN	ASN	conflict	UNP Q670R6
K	312	ASN	SER	conflict	UNP Q670R6
K	447	LYS	ARG	conflict	UNP Q670R6
K	450	ALA	THR	conflict	UNP Q670R6
K	593	THR	SER	conflict	UNP Q670R6
L	39	GLN	LYS	conflict	UNP Q670R6
L	164	GLN	ASN	conflict	UNP Q670R6
L	312	ASN	SER	conflict	UNP Q670R6
L	447	LYS	ARG	conflict	UNP Q670R6
L	450	ALA	THR	conflict	UNP Q670R6
L	593	THR	SER	conflict	UNP Q670R6
M	39	GLN	LYS	conflict	UNP Q670R6
M	164	GLN	ASN	conflict	UNP Q670R6
M	312	ASN	SER	conflict	UNP Q670R6
M	447	LYS	ARG	conflict	UNP Q670R6
M	450	ALA	THR	conflict	UNP Q670R6
M	593	THR	SER	conflict	UNP Q670R6
N	39	GLN	LYS	conflict	UNP Q670R6
N	164	GLN	ASN	conflict	UNP Q670R6
N	312	ASN	SER	conflict	UNP Q670R6
N	447	LYS	ARG	conflict	UNP Q670R6
N	450	ALA	THR	conflict	UNP Q670R6
N	593	THR	SER	conflict	UNP Q670R6
O	39	GLN	LYS	conflict	UNP Q670R6
O	164	GLN	ASN	conflict	UNP Q670R6
O	312	ASN	SER	conflict	UNP Q670R6
O	447	LYS	ARG	conflict	UNP Q670R6
O	450	ALA	THR	conflict	UNP Q670R6
O	593	THR	SER	conflict	UNP Q670R6

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Chain	Residue	Modelled	Actual	Comment	Reference
P	39	GLN	LYS	conflict	UNP Q670R6
P	164	GLN	ASN	conflict	UNP Q670R6
P	312	ASN	SER	conflict	UNP Q670R6
P	447	LYS	ARG	conflict	UNP Q670R6
P	450	ALA	THR	conflict	UNP Q670R6
P	593	THR	SER	conflict	UNP Q670R6
Q	39	GLN	LYS	conflict	UNP Q670R6
Q	164	GLN	ASN	conflict	UNP Q670R6
Q	312	ASN	SER	conflict	UNP Q670R6
Q	447	LYS	ARG	conflict	UNP Q670R6
Q	450	ALA	THR	conflict	UNP Q670R6
Q	593	THR	SER	conflict	UNP Q670R6
R	39	GLN	LYS	conflict	UNP Q670R6
R	164	GLN	ASN	conflict	UNP Q670R6
R	312	ASN	SER	conflict	UNP Q670R6
R	447	LYS	ARG	conflict	UNP Q670R6
R	450	ALA	THR	conflict	UNP Q670R6
R	593	THR	SER	conflict	UNP Q670R6
S	39	GLN	LYS	conflict	UNP Q670R6
S	164	GLN	ASN	conflict	UNP Q670R6
S	312	ASN	SER	conflict	UNP Q670R6
S	447	LYS	ARG	conflict	UNP Q670R6
S	450	ALA	THR	conflict	UNP Q670R6
S	593	THR	SER	conflict	UNP Q670R6
T	39	GLN	LYS	conflict	UNP Q670R6
T	164	GLN	ASN	conflict	UNP Q670R6
T	312	ASN	SER	conflict	UNP Q670R6
T	447	LYS	ARG	conflict	UNP Q670R6
T	450	ALA	THR	conflict	UNP Q670R6
T	593	THR	SER	conflict	UNP Q670R6
B	39	GLN	LYS	conflict	UNP Q670R6
B	164	GLN	ASN	conflict	UNP Q670R6
B	312	ASN	SER	conflict	UNP Q670R6
B	447	LYS	ARG	conflict	UNP Q670R6
B	450	ALA	THR	conflict	UNP Q670R6
B	593	THR	SER	conflict	UNP Q670R6
U	39	GLN	LYS	conflict	UNP Q670R6
U	164	GLN	ASN	conflict	UNP Q670R6
U	312	ASN	SER	conflict	UNP Q670R6
U	447	LYS	ARG	conflict	UNP Q670R6
U	450	ALA	THR	conflict	UNP Q670R6
U	593	THR	SER	conflict	UNP Q670R6

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Chain	Residue	Modelled	Actual	Comment	Reference
V	39	GLN	LYS	conflict	UNP Q670R6
V	164	GLN	ASN	conflict	UNP Q670R6
V	312	ASN	SER	conflict	UNP Q670R6
V	447	LYS	ARG	conflict	UNP Q670R6
V	450	ALA	THR	conflict	UNP Q670R6
V	593	THR	SER	conflict	UNP Q670R6
W	39	GLN	LYS	conflict	UNP Q670R6
W	164	GLN	ASN	conflict	UNP Q670R6
W	312	ASN	SER	conflict	UNP Q670R6
W	447	LYS	ARG	conflict	UNP Q670R6
W	450	ALA	THR	conflict	UNP Q670R6
W	593	THR	SER	conflict	UNP Q670R6
X	39	GLN	LYS	conflict	UNP Q670R6
X	164	GLN	ASN	conflict	UNP Q670R6
X	312	ASN	SER	conflict	UNP Q670R6
X	447	LYS	ARG	conflict	UNP Q670R6
X	450	ALA	THR	conflict	UNP Q670R6
X	593	THR	SER	conflict	UNP Q670R6
Y	39	GLN	LYS	conflict	UNP Q670R6
Y	164	GLN	ASN	conflict	UNP Q670R6
Y	312	ASN	SER	conflict	UNP Q670R6
Y	447	LYS	ARG	conflict	UNP Q670R6
Y	450	ALA	THR	conflict	UNP Q670R6
Y	593	THR	SER	conflict	UNP Q670R6
Z	39	GLN	LYS	conflict	UNP Q670R6
Z	164	GLN	ASN	conflict	UNP Q670R6
Z	312	ASN	SER	conflict	UNP Q670R6
Z	447	LYS	ARG	conflict	UNP Q670R6
Z	450	ALA	THR	conflict	UNP Q670R6
Z	593	THR	SER	conflict	UNP Q670R6
a	39	GLN	LYS	conflict	UNP Q670R6
a	164	GLN	ASN	conflict	UNP Q670R6
a	312	ASN	SER	conflict	UNP Q670R6
a	447	LYS	ARG	conflict	UNP Q670R6
a	450	ALA	THR	conflict	UNP Q670R6
a	593	THR	SER	conflict	UNP Q670R6
b	39	GLN	LYS	conflict	UNP Q670R6
b	164	GLN	ASN	conflict	UNP Q670R6
b	312	ASN	SER	conflict	UNP Q670R6
b	447	LYS	ARG	conflict	UNP Q670R6
b	450	ALA	THR	conflict	UNP Q670R6
b	593	THR	SER	conflict	UNP Q670R6

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Chain	Residue	Modelled	Actual	Comment	Reference
c	39	GLN	LYS	conflict	UNP Q670R6
c	164	GLN	ASN	conflict	UNP Q670R6
c	312	ASN	SER	conflict	UNP Q670R6
c	447	LYS	ARG	conflict	UNP Q670R6
c	450	ALA	THR	conflict	UNP Q670R6
c	593	THR	SER	conflict	UNP Q670R6
d	39	GLN	LYS	conflict	UNP Q670R6
d	164	GLN	ASN	conflict	UNP Q670R6
d	312	ASN	SER	conflict	UNP Q670R6
d	447	LYS	ARG	conflict	UNP Q670R6
d	450	ALA	THR	conflict	UNP Q670R6
d	593	THR	SER	conflict	UNP Q670R6
C	39	GLN	LYS	conflict	UNP Q670R6
C	164	GLN	ASN	conflict	UNP Q670R6
C	312	ASN	SER	conflict	UNP Q670R6
C	447	LYS	ARG	conflict	UNP Q670R6
C	450	ALA	THR	conflict	UNP Q670R6
C	593	THR	SER	conflict	UNP Q670R6
e	39	GLN	LYS	conflict	UNP Q670R6
e	164	GLN	ASN	conflict	UNP Q670R6
e	312	ASN	SER	conflict	UNP Q670R6
e	447	LYS	ARG	conflict	UNP Q670R6
e	450	ALA	THR	conflict	UNP Q670R6
e	593	THR	SER	conflict	UNP Q670R6
f	39	GLN	LYS	conflict	UNP Q670R6
f	164	GLN	ASN	conflict	UNP Q670R6
f	312	ASN	SER	conflict	UNP Q670R6
f	447	LYS	ARG	conflict	UNP Q670R6
f	450	ALA	THR	conflict	UNP Q670R6
f	593	THR	SER	conflict	UNP Q670R6
g	39	GLN	LYS	conflict	UNP Q670R6
g	164	GLN	ASN	conflict	UNP Q670R6
g	312	ASN	SER	conflict	UNP Q670R6
g	447	LYS	ARG	conflict	UNP Q670R6
g	450	ALA	THR	conflict	UNP Q670R6
g	593	THR	SER	conflict	UNP Q670R6
h	39	GLN	LYS	conflict	UNP Q670R6
h	164	GLN	ASN	conflict	UNP Q670R6
h	312	ASN	SER	conflict	UNP Q670R6
h	447	LYS	ARG	conflict	UNP Q670R6
h	450	ALA	THR	conflict	UNP Q670R6
h	593	THR	SER	conflict	UNP Q670R6

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Chain	Residue	Modelled	Actual	Comment	Reference
i	39	GLN	LYS	conflict	UNP Q670R6
i	164	GLN	ASN	conflict	UNP Q670R6
i	312	ASN	SER	conflict	UNP Q670R6
i	447	LYS	ARG	conflict	UNP Q670R6
i	450	ALA	THR	conflict	UNP Q670R6
i	593	THR	SER	conflict	UNP Q670R6
j	39	GLN	LYS	conflict	UNP Q670R6
j	164	GLN	ASN	conflict	UNP Q670R6
j	312	ASN	SER	conflict	UNP Q670R6
j	447	LYS	ARG	conflict	UNP Q670R6
j	450	ALA	THR	conflict	UNP Q670R6
j	593	THR	SER	conflict	UNP Q670R6
k	39	GLN	LYS	conflict	UNP Q670R6
k	164	GLN	ASN	conflict	UNP Q670R6
k	312	ASN	SER	conflict	UNP Q670R6
k	447	LYS	ARG	conflict	UNP Q670R6
k	450	ALA	THR	conflict	UNP Q670R6
k	593	THR	SER	conflict	UNP Q670R6
l	39	GLN	LYS	conflict	UNP Q670R6
l	164	GLN	ASN	conflict	UNP Q670R6
l	312	ASN	SER	conflict	UNP Q670R6
l	447	LYS	ARG	conflict	UNP Q670R6
l	450	ALA	THR	conflict	UNP Q670R6
l	593	THR	SER	conflict	UNP Q670R6
m	39	GLN	LYS	conflict	UNP Q670R6
m	164	GLN	ASN	conflict	UNP Q670R6
m	312	ASN	SER	conflict	UNP Q670R6
m	447	LYS	ARG	conflict	UNP Q670R6
m	450	ALA	THR	conflict	UNP Q670R6
m	593	THR	SER	conflict	UNP Q670R6
n	39	GLN	LYS	conflict	UNP Q670R6
n	164	GLN	ASN	conflict	UNP Q670R6
n	312	ASN	SER	conflict	UNP Q670R6
n	447	LYS	ARG	conflict	UNP Q670R6
n	450	ALA	THR	conflict	UNP Q670R6
n	593	THR	SER	conflict	UNP Q670R6
D	39	GLN	LYS	conflict	UNP Q670R6
D	164	GLN	ASN	conflict	UNP Q670R6
D	312	ASN	SER	conflict	UNP Q670R6
D	447	LYS	ARG	conflict	UNP Q670R6
D	450	ALA	THR	conflict	UNP Q670R6
D	593	THR	SER	conflict	UNP Q670R6

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Chain	Residue	Modelled	Actual	Comment	Reference
o	39	GLN	LYS	conflict	UNP Q670R6
o	164	GLN	ASN	conflict	UNP Q670R6
o	312	ASN	SER	conflict	UNP Q670R6
o	447	LYS	ARG	conflict	UNP Q670R6
o	450	ALA	THR	conflict	UNP Q670R6
o	593	THR	SER	conflict	UNP Q670R6
p	39	GLN	LYS	conflict	UNP Q670R6
p	164	GLN	ASN	conflict	UNP Q670R6
p	312	ASN	SER	conflict	UNP Q670R6
p	447	LYS	ARG	conflict	UNP Q670R6
p	450	ALA	THR	conflict	UNP Q670R6
p	593	THR	SER	conflict	UNP Q670R6
q	39	GLN	LYS	conflict	UNP Q670R6
q	164	GLN	ASN	conflict	UNP Q670R6
q	312	ASN	SER	conflict	UNP Q670R6
q	447	LYS	ARG	conflict	UNP Q670R6
q	450	ALA	THR	conflict	UNP Q670R6
q	593	THR	SER	conflict	UNP Q670R6
r	39	GLN	LYS	conflict	UNP Q670R6
r	164	GLN	ASN	conflict	UNP Q670R6
r	312	ASN	SER	conflict	UNP Q670R6
r	447	LYS	ARG	conflict	UNP Q670R6
r	450	ALA	THR	conflict	UNP Q670R6
r	593	THR	SER	conflict	UNP Q670R6
s	39	GLN	LYS	conflict	UNP Q670R6
s	164	GLN	ASN	conflict	UNP Q670R6
s	312	ASN	SER	conflict	UNP Q670R6
s	447	LYS	ARG	conflict	UNP Q670R6
s	450	ALA	THR	conflict	UNP Q670R6
s	593	THR	SER	conflict	UNP Q670R6
t	39	GLN	LYS	conflict	UNP Q670R6
t	164	GLN	ASN	conflict	UNP Q670R6
t	312	ASN	SER	conflict	UNP Q670R6
t	447	LYS	ARG	conflict	UNP Q670R6
t	450	ALA	THR	conflict	UNP Q670R6
t	593	THR	SER	conflict	UNP Q670R6
u	39	GLN	LYS	conflict	UNP Q670R6
u	164	GLN	ASN	conflict	UNP Q670R6
u	312	ASN	SER	conflict	UNP Q670R6
u	447	LYS	ARG	conflict	UNP Q670R6
u	450	ALA	THR	conflict	UNP Q670R6
u	593	THR	SER	conflict	UNP Q670R6

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Chain	Residue	Modelled	Actual	Comment	Reference
v	39	GLN	LYS	conflict	UNP Q670R6
v	164	GLN	ASN	conflict	UNP Q670R6
v	312	ASN	SER	conflict	UNP Q670R6
v	447	LYS	ARG	conflict	UNP Q670R6
v	450	ALA	THR	conflict	UNP Q670R6
v	593	THR	SER	conflict	UNP Q670R6
w	39	GLN	LYS	conflict	UNP Q670R6
w	164	GLN	ASN	conflict	UNP Q670R6
w	312	ASN	SER	conflict	UNP Q670R6
w	447	LYS	ARG	conflict	UNP Q670R6
w	450	ALA	THR	conflict	UNP Q670R6
w	593	THR	SER	conflict	UNP Q670R6
x	39	GLN	LYS	conflict	UNP Q670R6
x	164	GLN	ASN	conflict	UNP Q670R6
x	312	ASN	SER	conflict	UNP Q670R6
x	447	LYS	ARG	conflict	UNP Q670R6
x	450	ALA	THR	conflict	UNP Q670R6
x	593	THR	SER	conflict	UNP Q670R6
E	39	GLN	LYS	conflict	UNP Q670R6
E	164	GLN	ASN	conflict	UNP Q670R6
E	312	ASN	SER	conflict	UNP Q670R6
E	447	LYS	ARG	conflict	UNP Q670R6
E	450	ALA	THR	conflict	UNP Q670R6
E	593	THR	SER	conflict	UNP Q670R6
y	39	GLN	LYS	conflict	UNP Q670R6
y	164	GLN	ASN	conflict	UNP Q670R6
y	312	ASN	SER	conflict	UNP Q670R6
y	447	LYS	ARG	conflict	UNP Q670R6
y	450	ALA	THR	conflict	UNP Q670R6
y	593	THR	SER	conflict	UNP Q670R6
z	39	GLN	LYS	conflict	UNP Q670R6
z	164	GLN	ASN	conflict	UNP Q670R6
z	312	ASN	SER	conflict	UNP Q670R6
z	447	LYS	ARG	conflict	UNP Q670R6
z	450	ALA	THR	conflict	UNP Q670R6
z	593	THR	SER	conflict	UNP Q670R6
0	39	GLN	LYS	conflict	UNP Q670R6
0	164	GLN	ASN	conflict	UNP Q670R6
0	312	ASN	SER	conflict	UNP Q670R6
0	447	LYS	ARG	conflict	UNP Q670R6
0	450	ALA	THR	conflict	UNP Q670R6
0	593	THR	SER	conflict	UNP Q670R6

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Chain	Residue	Modelled	Actual	Comment	Reference
1	39	GLN	LYS	conflict	UNP Q670R6
1	164	GLN	ASN	conflict	UNP Q670R6
1	312	ASN	SER	conflict	UNP Q670R6
1	447	LYS	ARG	conflict	UNP Q670R6
1	450	ALA	THR	conflict	UNP Q670R6
1	593	THR	SER	conflict	UNP Q670R6
2	39	GLN	LYS	conflict	UNP Q670R6
2	164	GLN	ASN	conflict	UNP Q670R6
2	312	ASN	SER	conflict	UNP Q670R6
2	447	LYS	ARG	conflict	UNP Q670R6
2	450	ALA	THR	conflict	UNP Q670R6
2	593	THR	SER	conflict	UNP Q670R6
3	39	GLN	LYS	conflict	UNP Q670R6
3	164	GLN	ASN	conflict	UNP Q670R6
3	312	ASN	SER	conflict	UNP Q670R6
3	447	LYS	ARG	conflict	UNP Q670R6
3	450	ALA	THR	conflict	UNP Q670R6
3	593	THR	SER	conflict	UNP Q670R6
4	39	GLN	LYS	conflict	UNP Q670R6
4	164	GLN	ASN	conflict	UNP Q670R6
4	312	ASN	SER	conflict	UNP Q670R6
4	447	LYS	ARG	conflict	UNP Q670R6
4	450	ALA	THR	conflict	UNP Q670R6
4	593	THR	SER	conflict	UNP Q670R6
5	39	GLN	LYS	conflict	UNP Q670R6
5	164	GLN	ASN	conflict	UNP Q670R6
5	312	ASN	SER	conflict	UNP Q670R6
5	447	LYS	ARG	conflict	UNP Q670R6
5	450	ALA	THR	conflict	UNP Q670R6
5	593	THR	SER	conflict	UNP Q670R6
6	39	GLN	LYS	conflict	UNP Q670R6
6	164	GLN	ASN	conflict	UNP Q670R6
6	312	ASN	SER	conflict	UNP Q670R6
6	447	LYS	ARG	conflict	UNP Q670R6
6	450	ALA	THR	conflict	UNP Q670R6
6	593	THR	SER	conflict	UNP Q670R6
7	39	GLN	LYS	conflict	UNP Q670R6
7	164	GLN	ASN	conflict	UNP Q670R6
7	312	ASN	SER	conflict	UNP Q670R6
7	447	LYS	ARG	conflict	UNP Q670R6
7	450	ALA	THR	conflict	UNP Q670R6
7	593	THR	SER	conflict	UNP Q670R6

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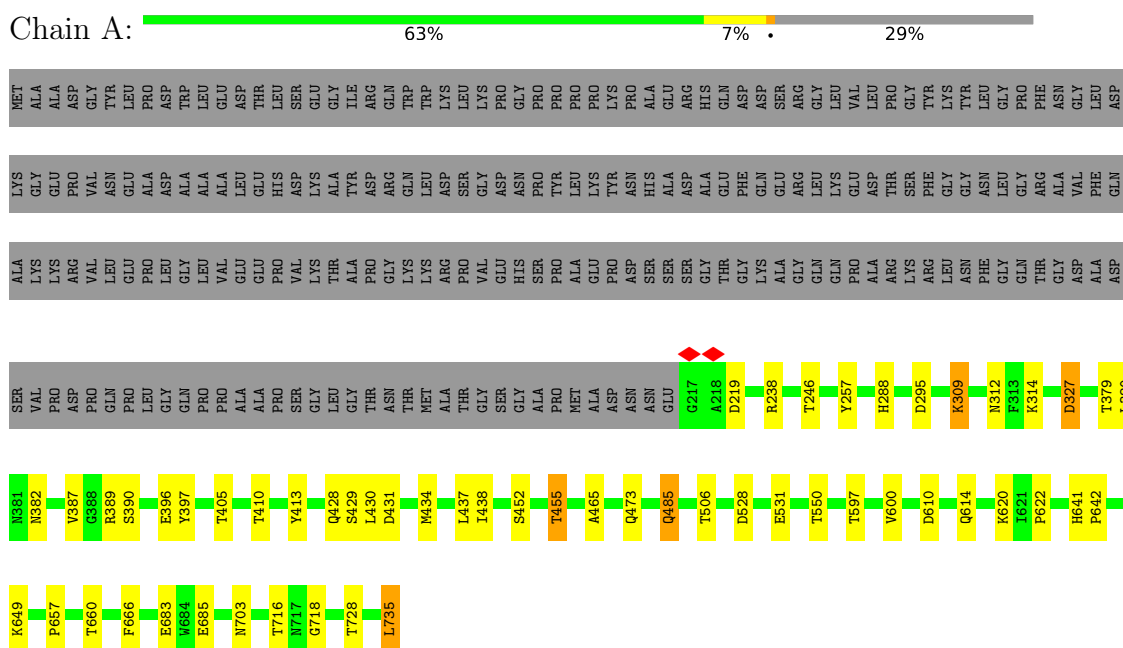
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Chain	Residue	Modelled	Actual	Comment	Reference
F	39	GLN	LYS	conflict	UNP Q670R6
F	164	GLN	ASN	conflict	UNP Q670R6
F	312	ASN	SER	conflict	UNP Q670R6
F	447	LYS	ARG	conflict	UNP Q670R6
F	450	ALA	THR	conflict	UNP Q670R6
F	593	THR	SER	conflict	UNP Q670R6
G	39	GLN	LYS	conflict	UNP Q670R6
G	164	GLN	ASN	conflict	UNP Q670R6
G	312	ASN	SER	conflict	UNP Q670R6
G	447	LYS	ARG	conflict	UNP Q670R6
G	450	ALA	THR	conflict	UNP Q670R6
G	593	THR	SER	conflict	UNP Q670R6
H	39	GLN	LYS	conflict	UNP Q670R6
H	164	GLN	ASN	conflict	UNP Q670R6
H	312	ASN	SER	conflict	UNP Q670R6
H	447	LYS	ARG	conflict	UNP Q670R6
H	450	ALA	THR	conflict	UNP Q670R6
H	593	THR	SER	conflict	UNP Q670R6
I	39	GLN	LYS	conflict	UNP Q670R6
I	164	GLN	ASN	conflict	UNP Q670R6
I	312	ASN	SER	conflict	UNP Q670R6
I	447	LYS	ARG	conflict	UNP Q670R6
I	450	ALA	THR	conflict	UNP Q670R6
I	593	THR	SER	conflict	UNP Q670R6
J	39	GLN	LYS	conflict	UNP Q670R6
J	164	GLN	ASN	conflict	UNP Q670R6
J	312	ASN	SER	conflict	UNP Q670R6
J	447	LYS	ARG	conflict	UNP Q670R6
J	450	ALA	THR	conflict	UNP Q670R6
J	593	THR	SER	conflict	UNP Q670R6

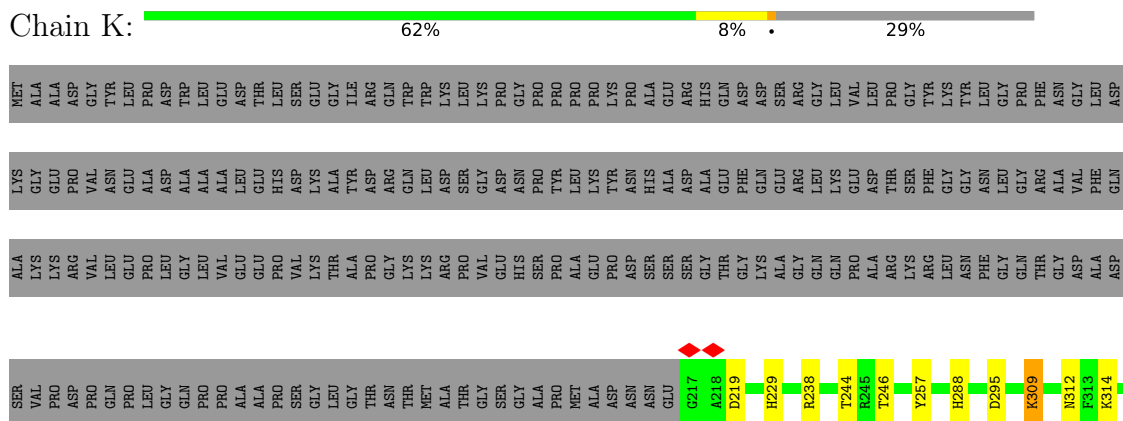
3 Residue-property plots

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

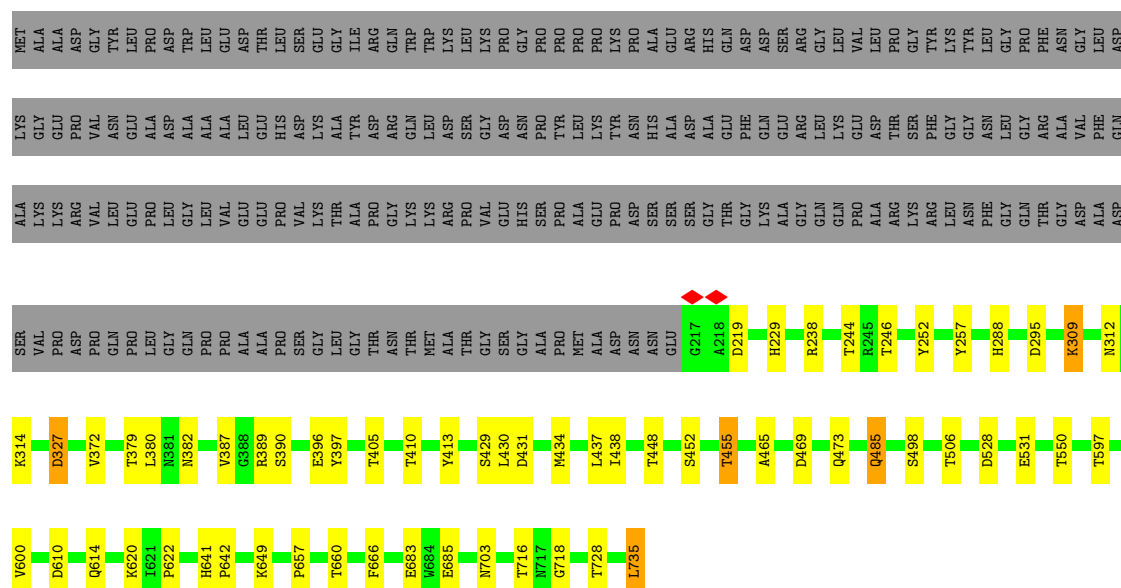
• Molecule 1: Capsid protein VP1



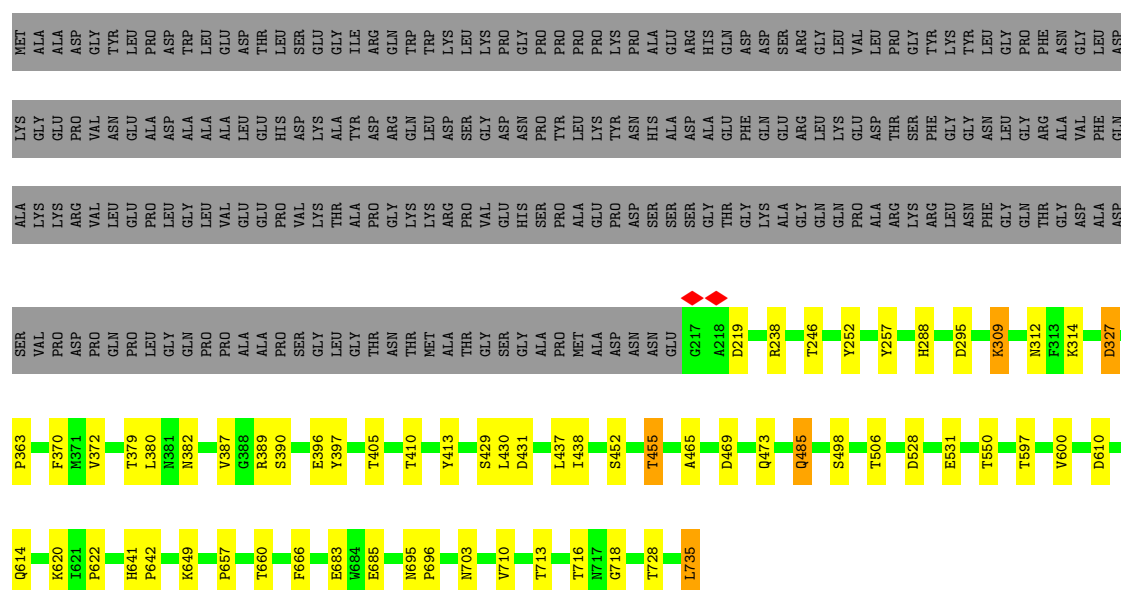
• Molecule 1: Capsid protein VP1



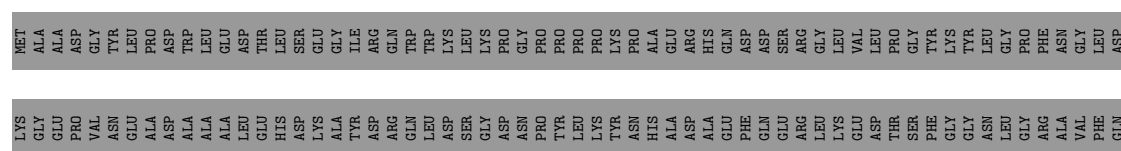


Chain N:  62% 8% 29%

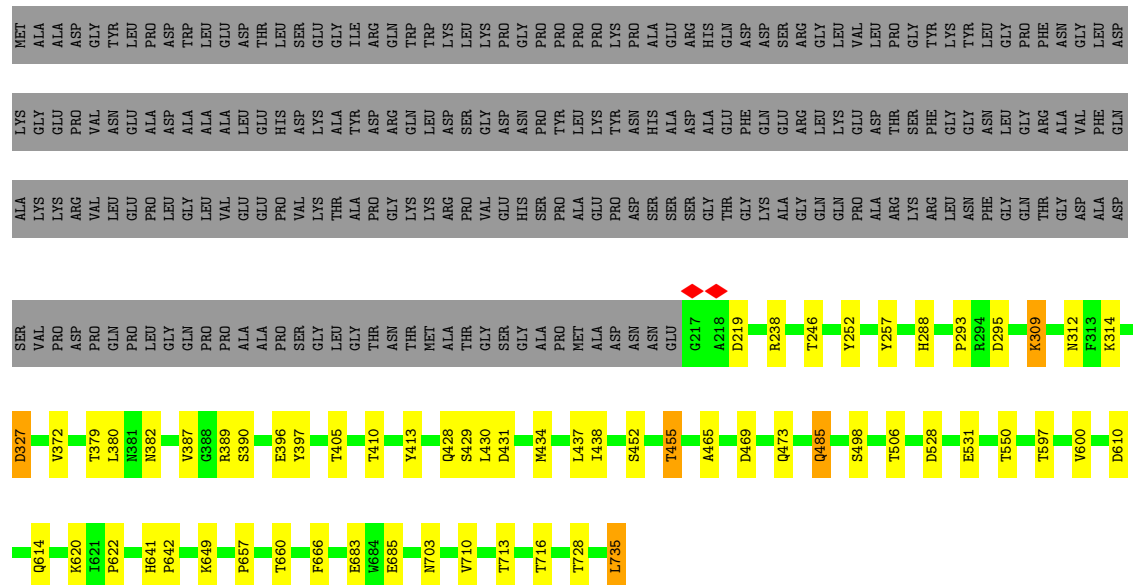
• Molecule 1: Capsid protein VP1

Chain O:  62% 8% 29%

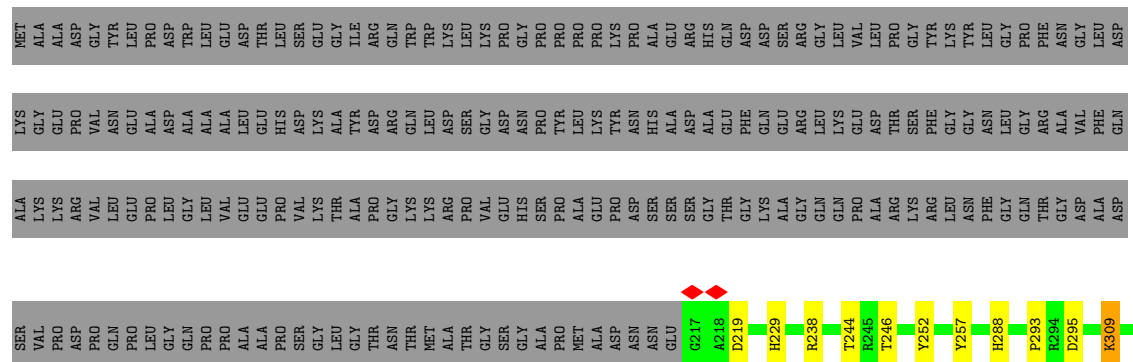
• Molecule 1: Capsid protein VP1

Chain P:  62% 8% 29%

- Molecule 1: Capsid protein VP1

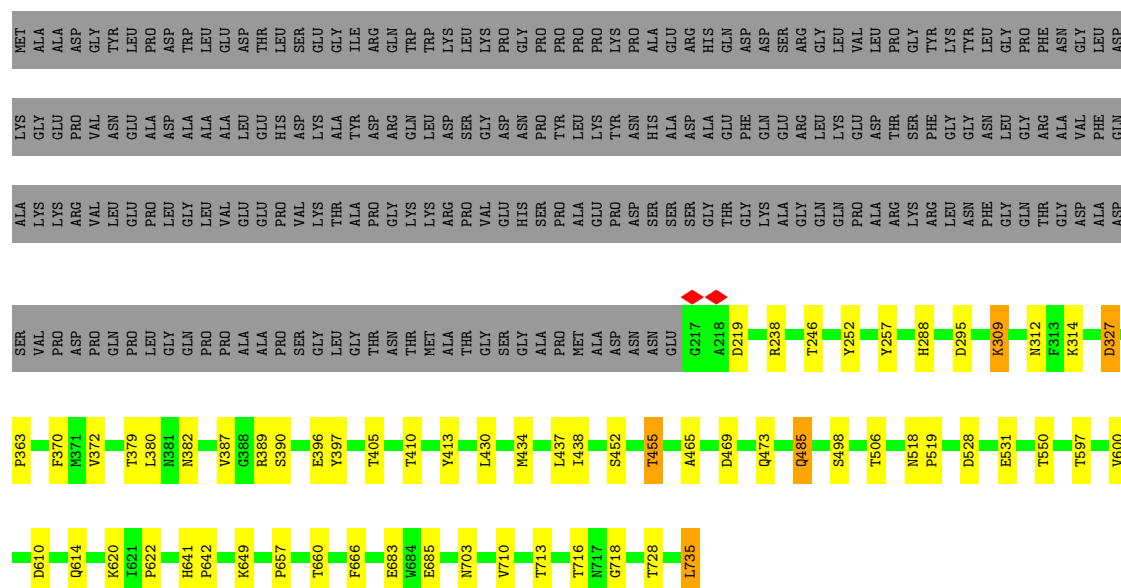


- Molecule 1: Capsid protein VP1



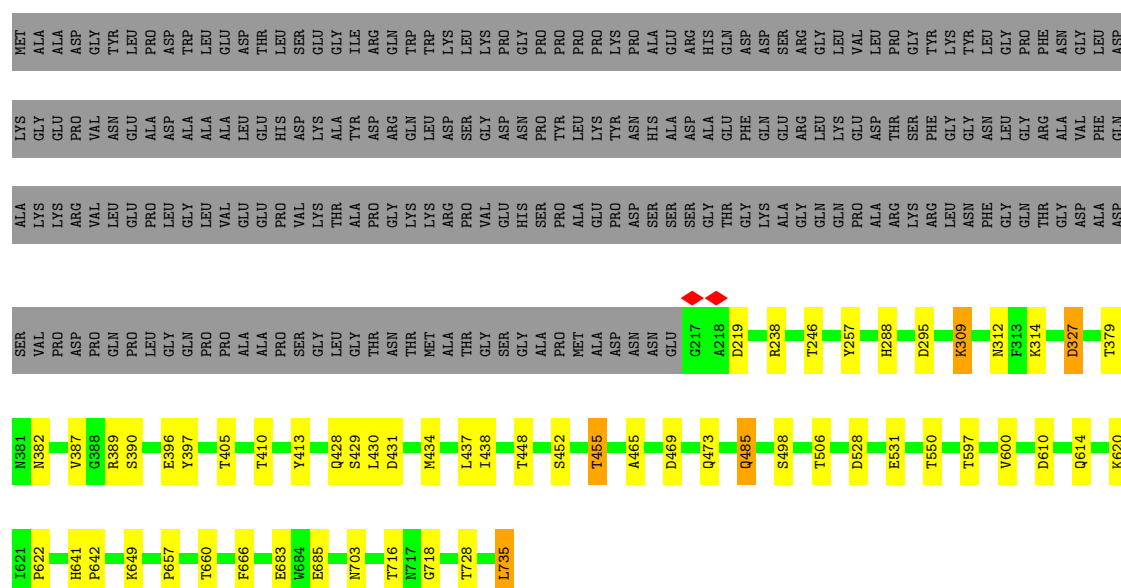


Chain B:  62% 8% 29%



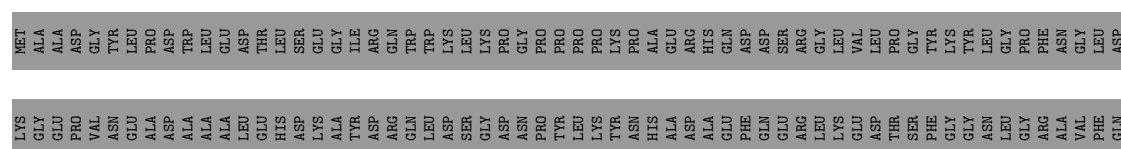
• Molecule 1: Capsid protein VP1

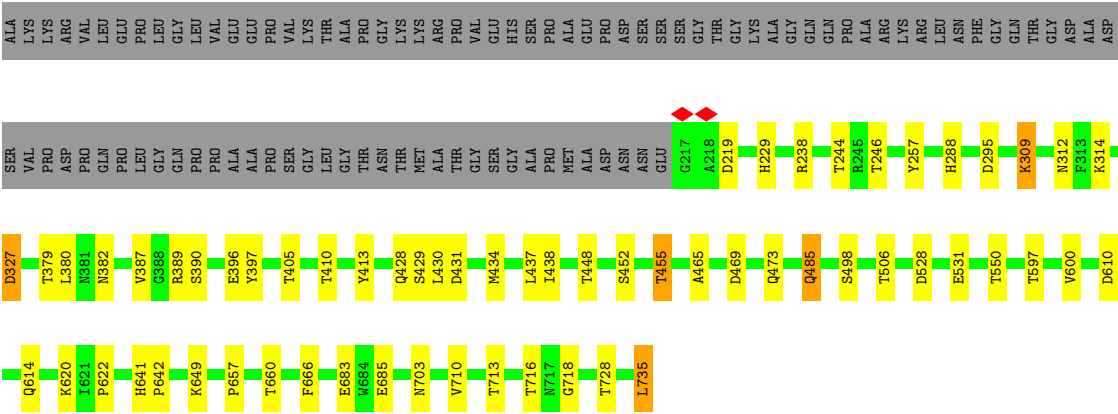
Chain U:  63% 7% 29%



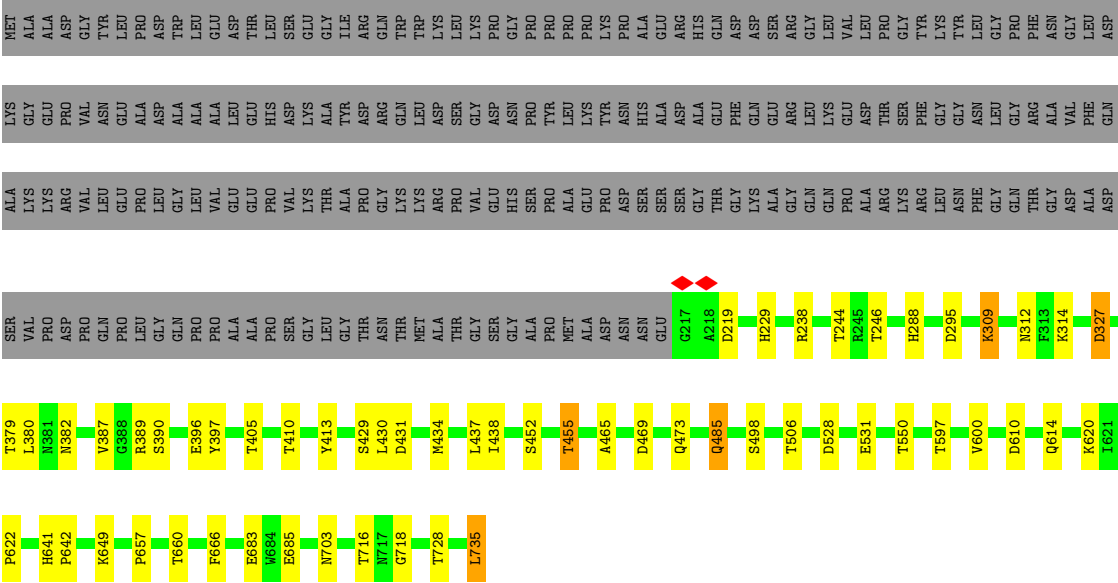
• Molecule 1: Capsid protein VP1

Chain V:  62% 8% 29%

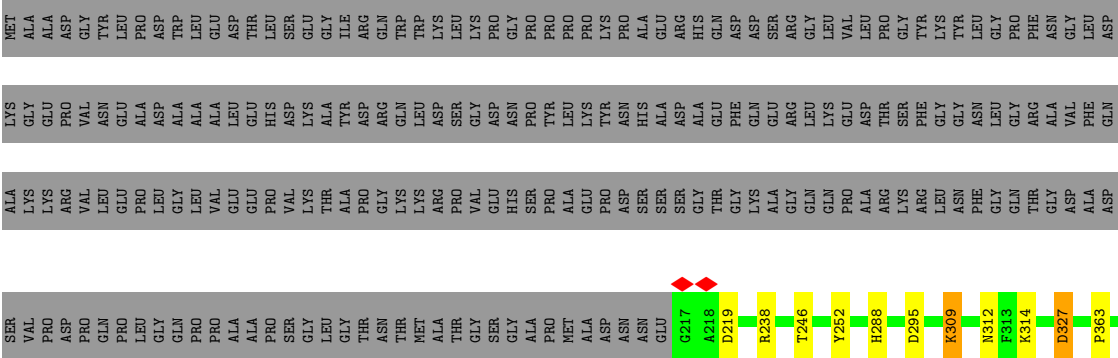


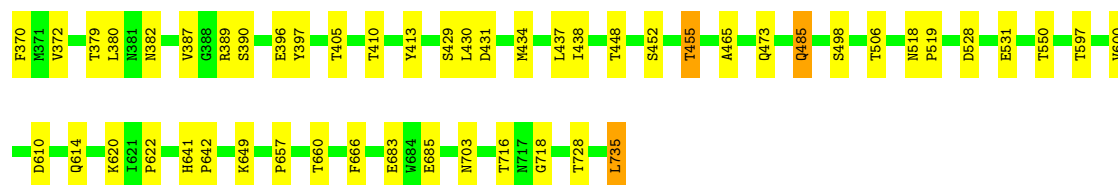


• Molecule 1: Capsid protein VP1



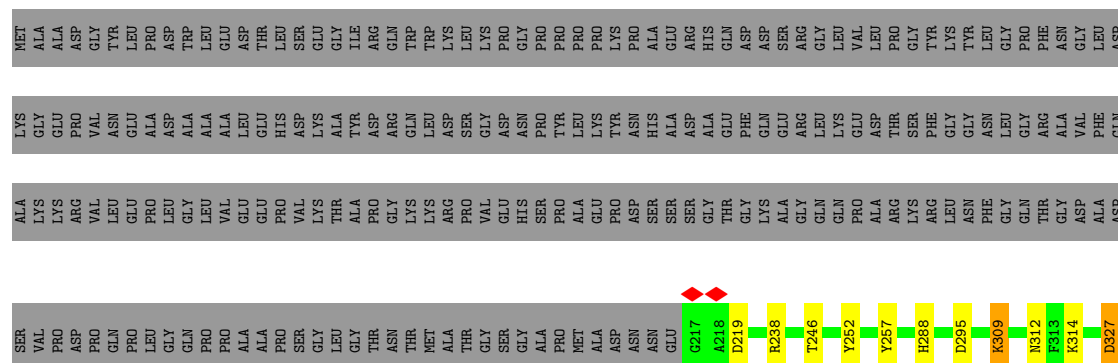
• Molecule 1: Capsid protein VP1





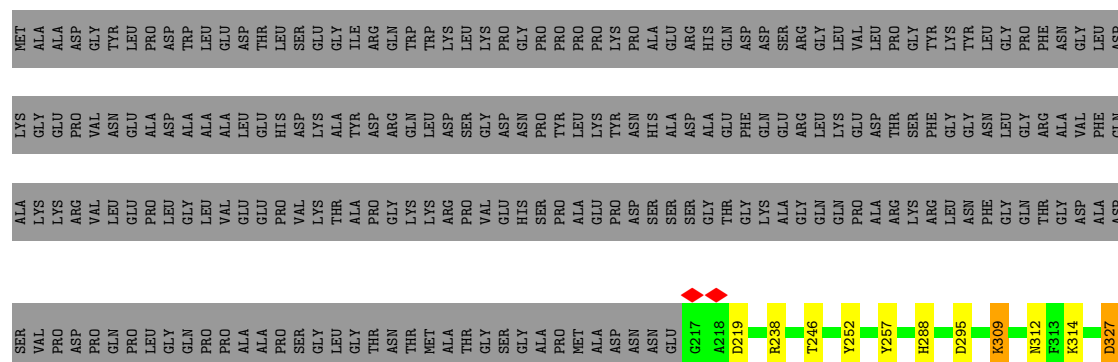
- Molecule 1: Capsid protein VP1

Chain Y: 62% 8% 29%



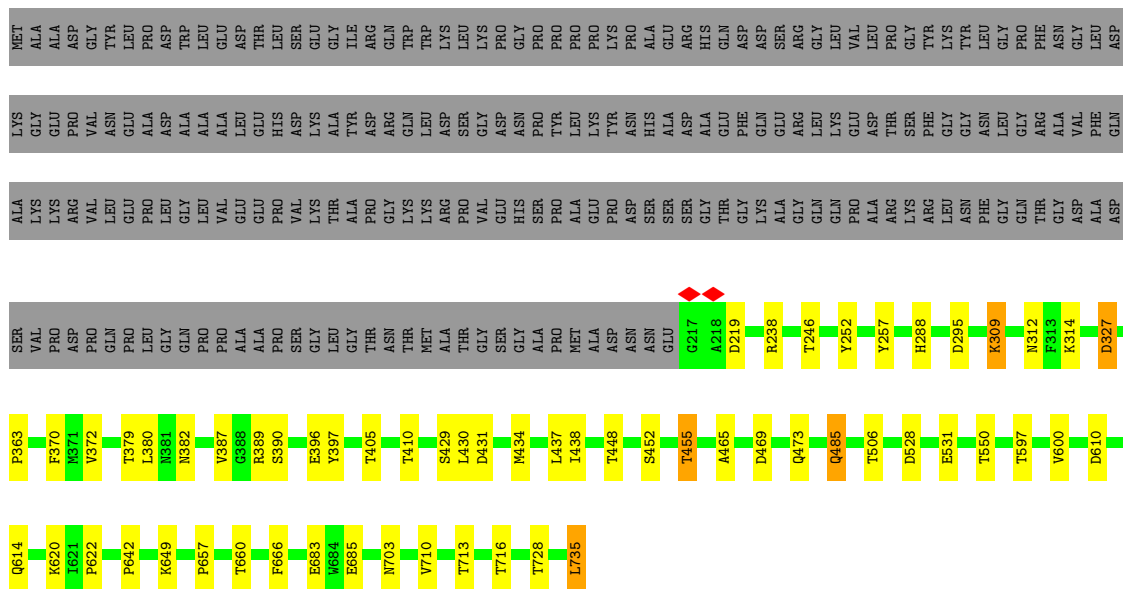
- Molecule 1: Capsid protein VP1

Chain Z: 62% 8% 29%



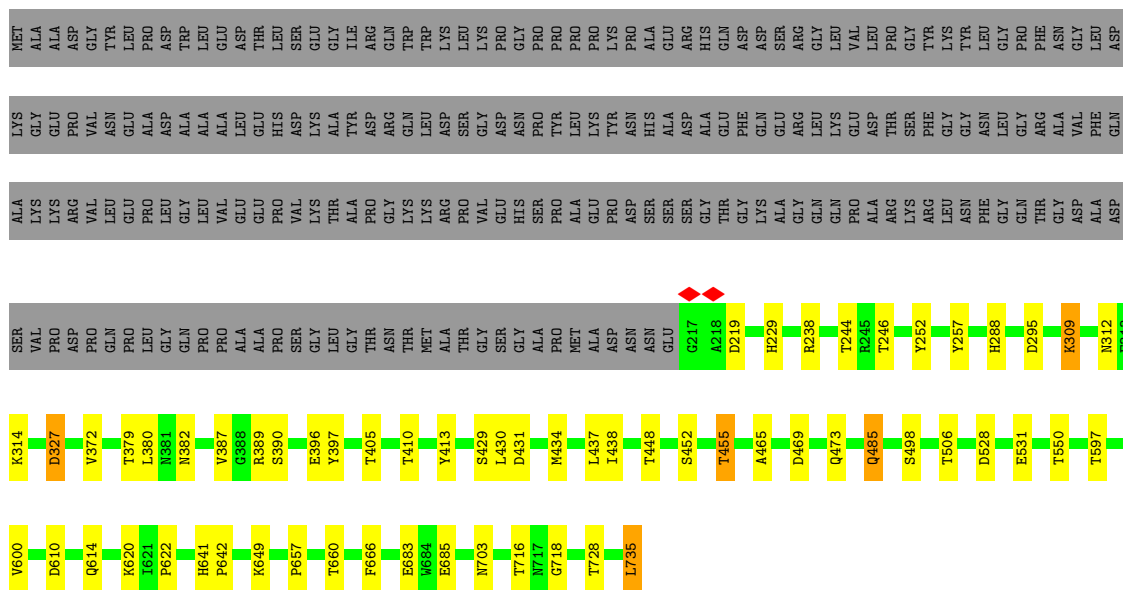
- Molecule 1: Capsid protein VP1

29%



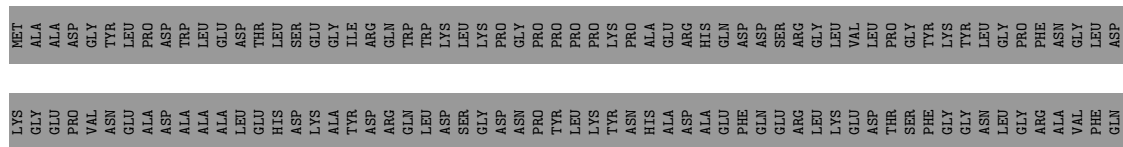
- Molecule 1: Capsid protein VP1

29°

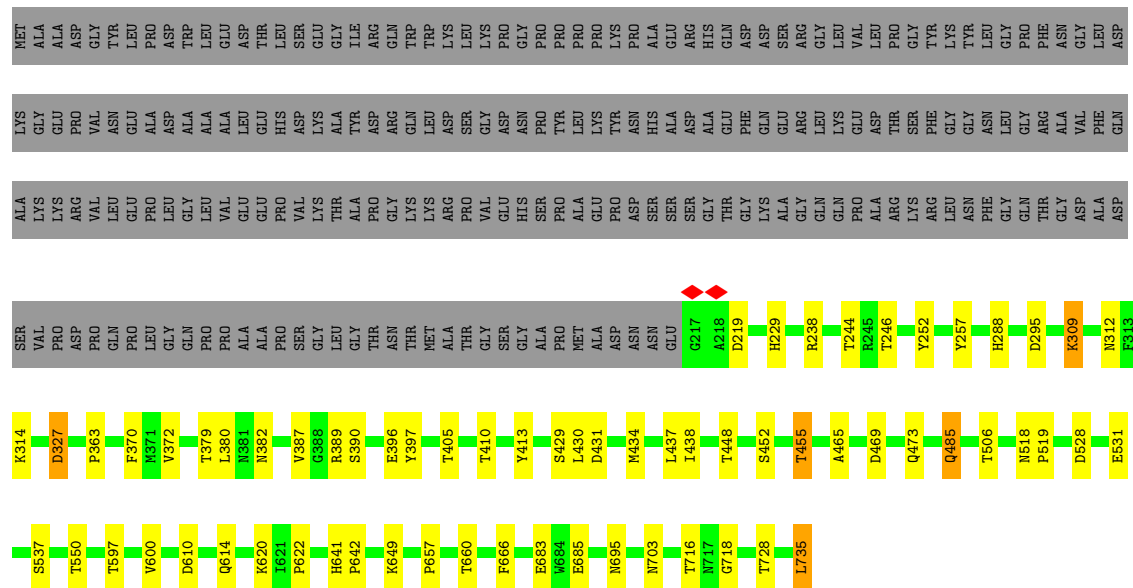


- Molecule 1: Capsid protein VP1

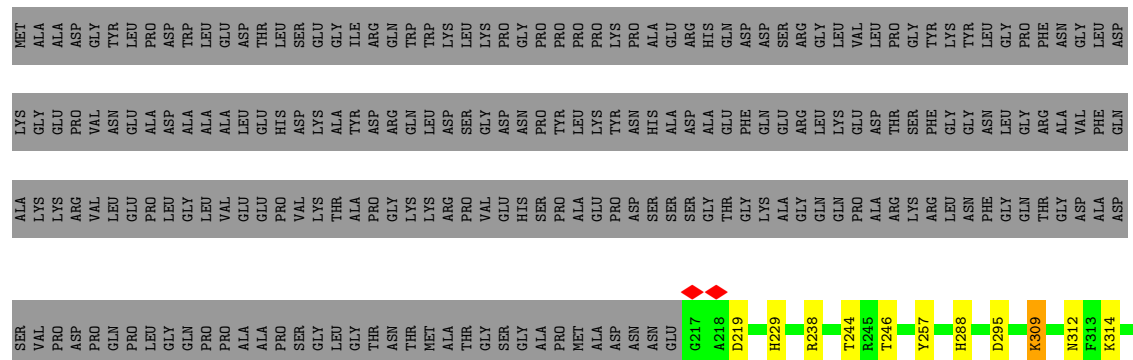
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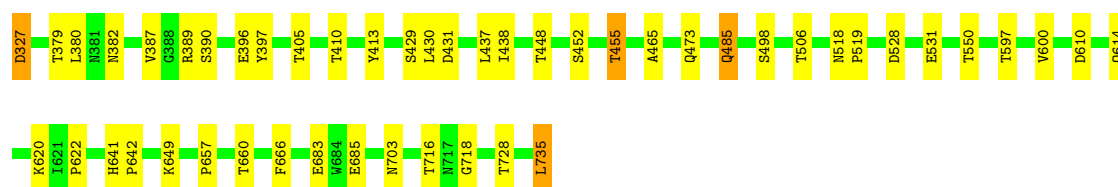


- Molecule 1: Capsid protein VP1



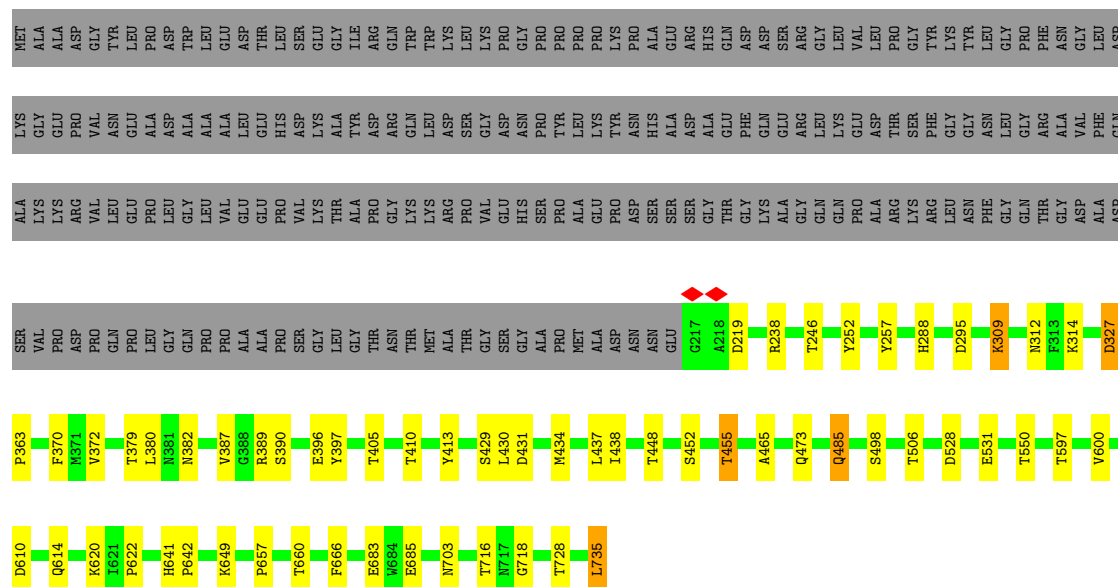
- Molecule 1: Capsid protein VP1





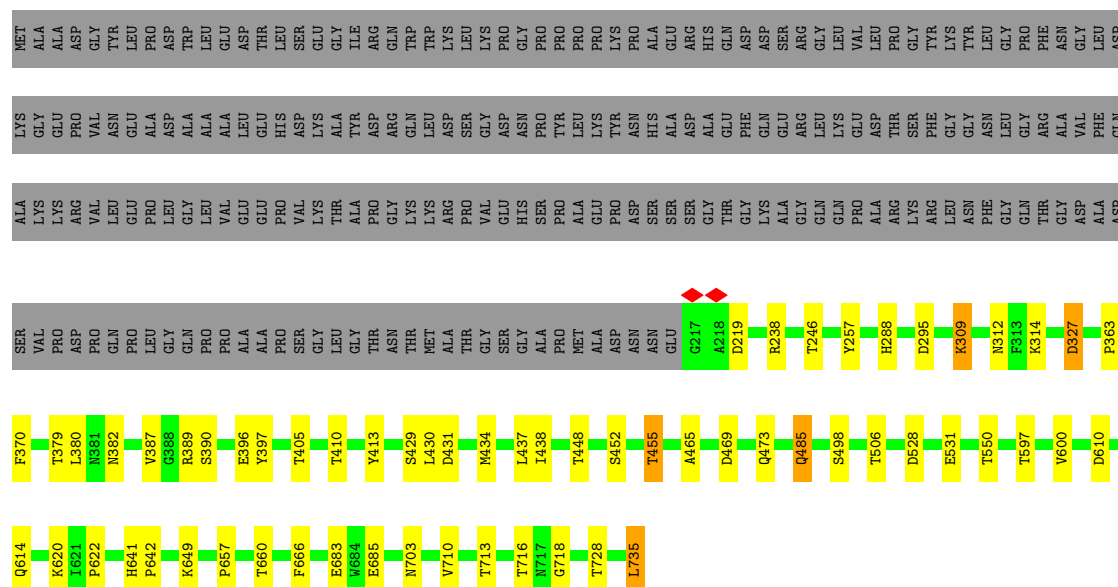
• Molecule 1: Capsid protein VP1

Chain e: 62% 8% 29%



• Molecule 1: Capsid protein VP1

Chain f: 62% 8% 29%



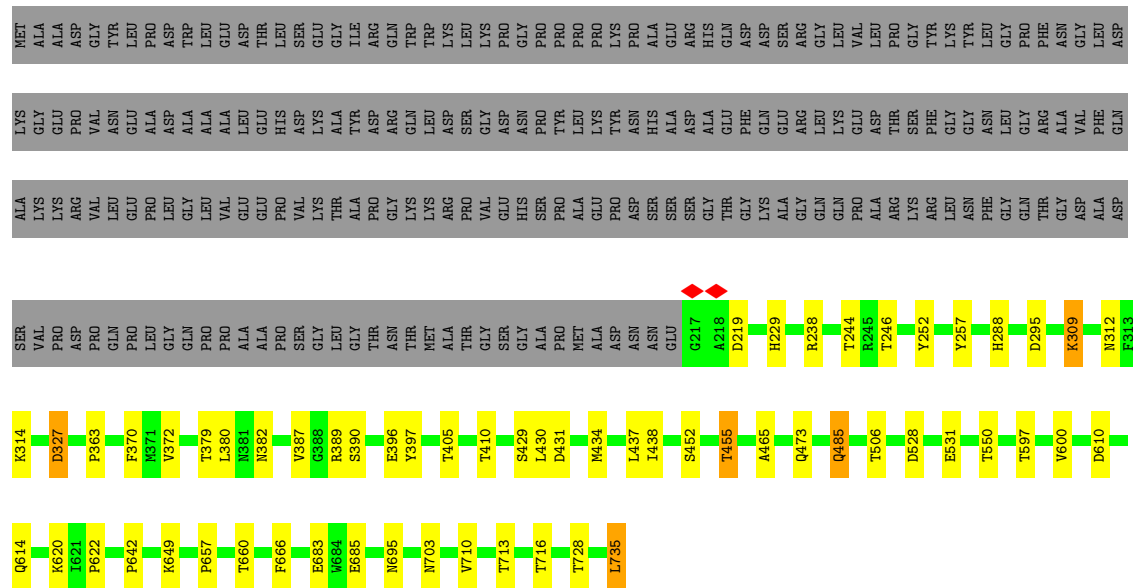
• Molecule 1: Capsid protein VP1

29%

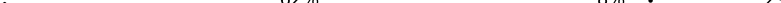


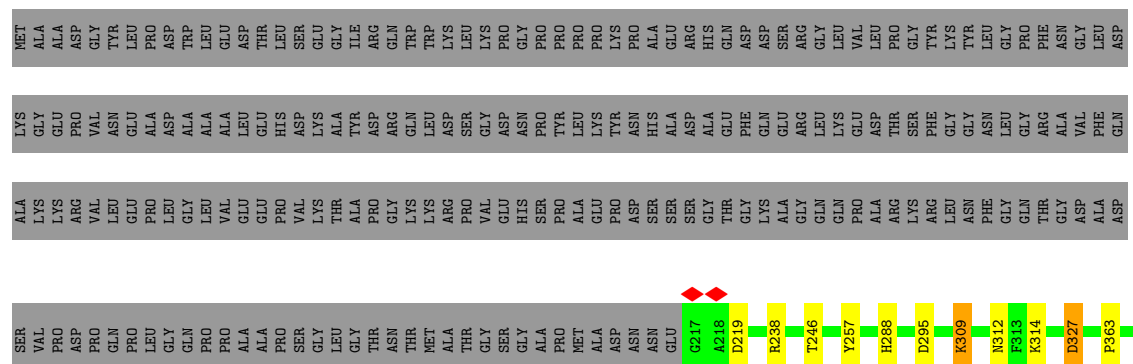
- Molecule 1: Capsid protein VP1

Chain j: 62% 8% . 29%



- Molecule 1: Capsid protein VP1

Chain k:  62% 8% . 29%



Response	Percentage
Yes	62%
No	8%
Don't know	29%



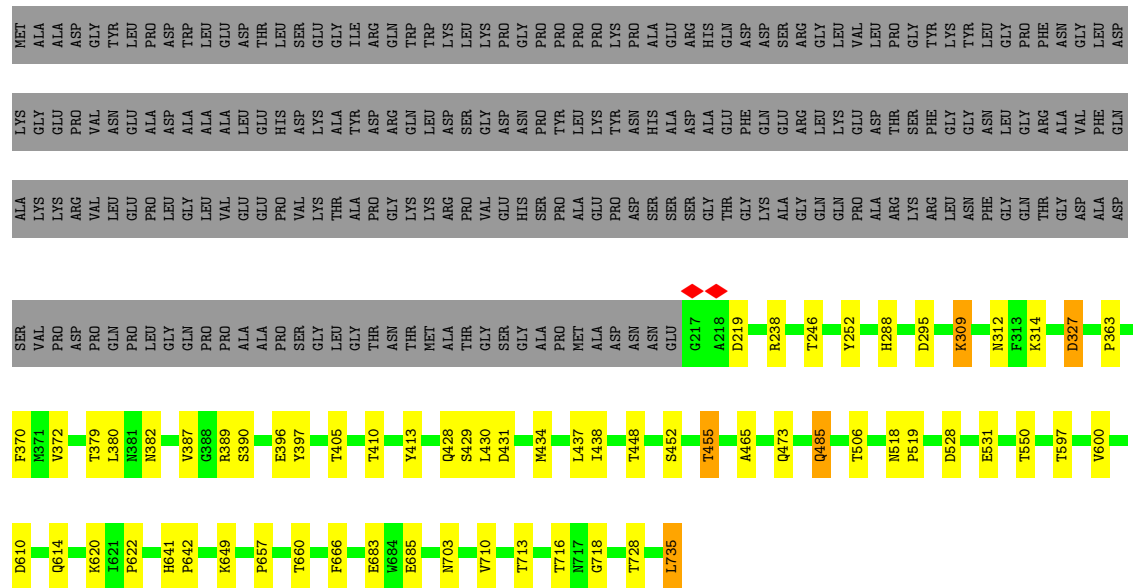
Response	Percentage
Doing a good job	62%
Not doing a good job	8%
Don't know	29%



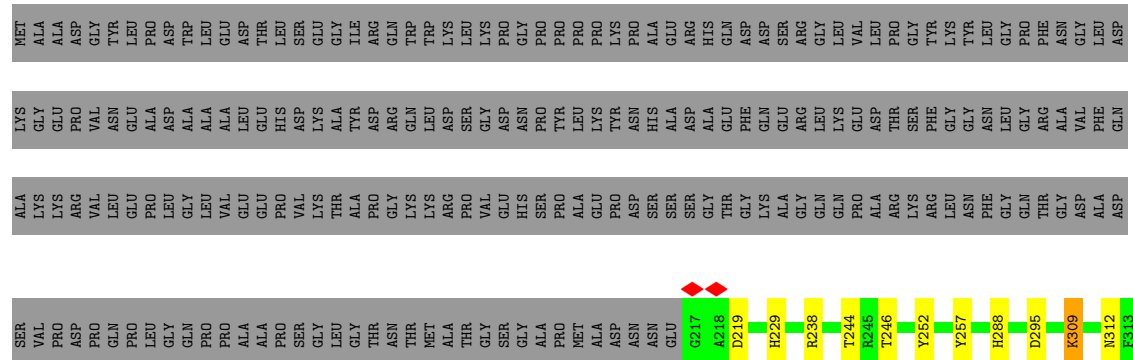
Response	Percentage
Yes	62%
No	7%
Don't know	29%



- Molecule 1: Capsid protein VP1



- Molecule 1: Capsid protein VP1





29%

K649	N381	SER	ALA	LYS	MET
P657	N382	VAL	LYS	GLY	ALA
T660	V387	ASP	ARG	PRO	ASP
F666	R389	GLN	VAL	ASN	TYR
E683	S390	PRO	LEU	GLU	PRO
A684	E396	LEU	LEU	PRO	ASP
E885	Y397	GLN	GLY	ALA	TRP
N695	T405	PRO	VAL	LEU	LEU
N703	T410	ALA	GLU	GLU	GLU
V710	Y413	SER	VAL	HIS	THR
T713	S429	LEU	THR	ALA	GLY
T716	L430	GLY	ALA	TYR	ILE
T728	D431	THR	PRO	ASP	ARG
L735	L437	ASN	GLY	ARG	GLN
	I438	THR	LYS	LEU	TRP
	T448	MET	LYS	LEU	TRP
	S452	ALA	ARG	ASP	LYS
	T455	THR	ARG	SER	LEU
	A465	GLY	VAL	GLY	LYS
	Q473	SER	GLU	ASP	PRO
	Q485	GLY	HIS	ASN	PRO
	S498	PRO	SER	ASP	PRO
	T506	MET	GLY	GLU	ALG
	D528	ASP	THR	ALA	GLN
	E531	ASN	GLY	PHE	ASP
	T550	ASN	LYS	GLN	SER
	T597	ALA	ALA	GLU	ARG
	V600	R238	GLY	ARG	GLY
	D610	T246	GLN	LEU	LEU
	Q614	Y257	PRO	ASP	VAL
	K620	H288	ALA	THR	LEU
	I621	D295	ARG	SER	PRO
	P622	K309	LYS	PHE	GLY
	H641	N312	ASN	GLY	TYR
	L642	F313	PHE	ASN	TYR
		K314	GLY	LEU	GLY
		D327	THR	ARG	LYS
		T379	GLY	ASP	TYR
			VAL	VAL	GLY
			PHE	PHE	ASP
			ALA	CTR	LEU

- Molecule 1: Capsid protein VP1

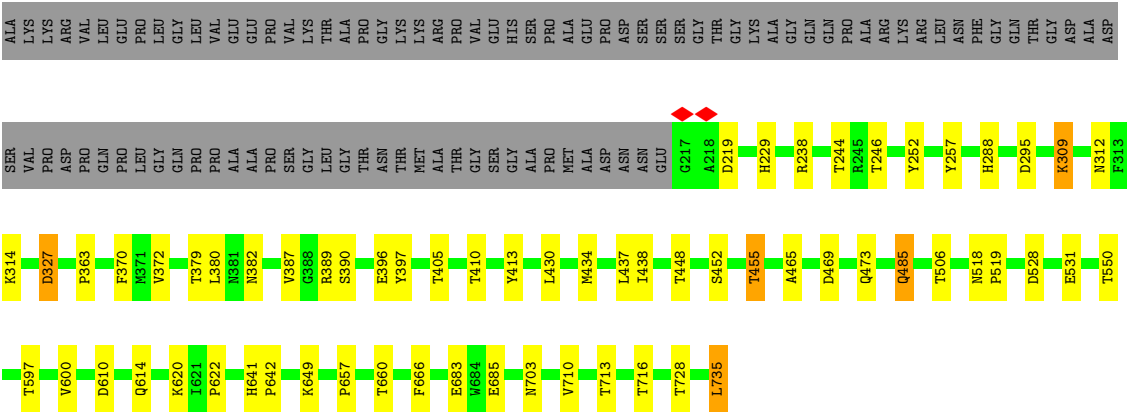
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[illegible]

- Molecule 1: Capsid protein VP1

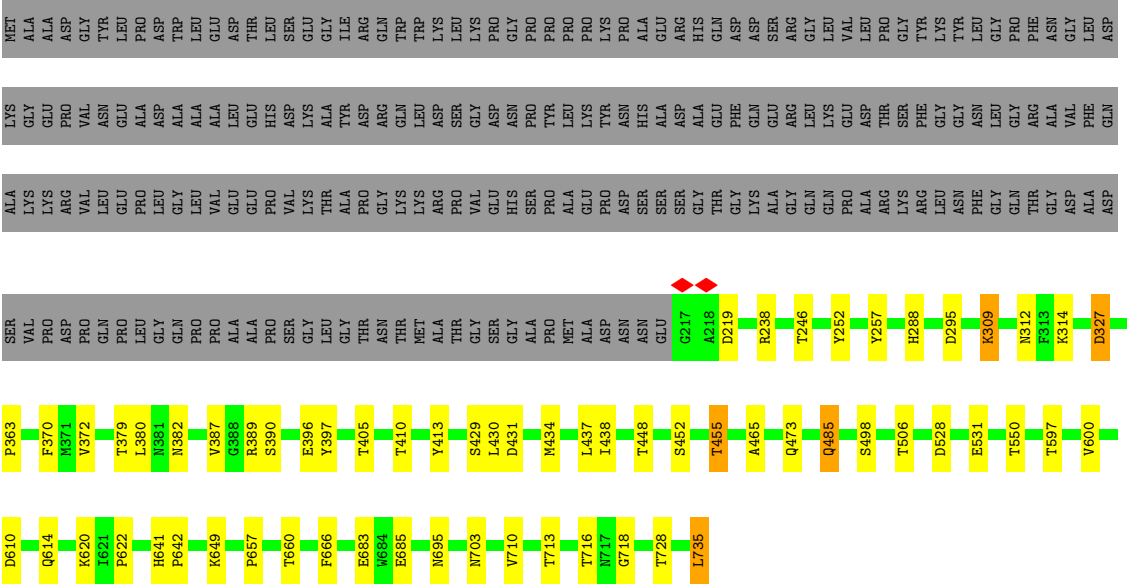
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[illegible]



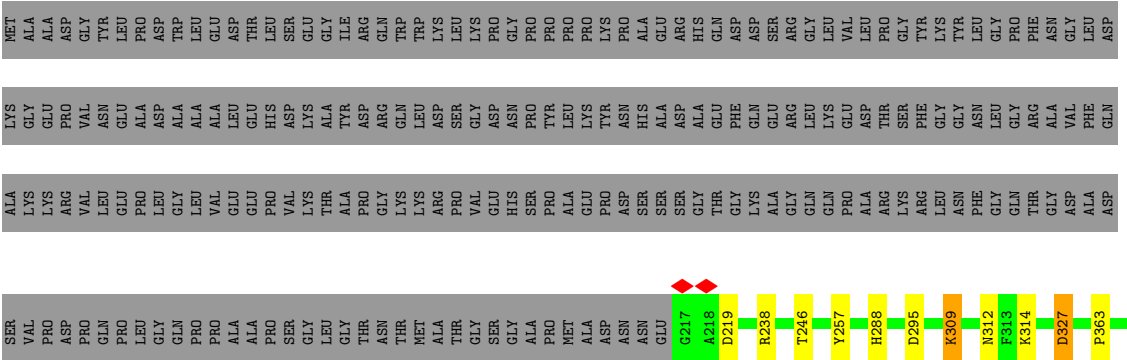
• Molecule 1: Capsid protein VP1

Chain w: 62% 8% 29%

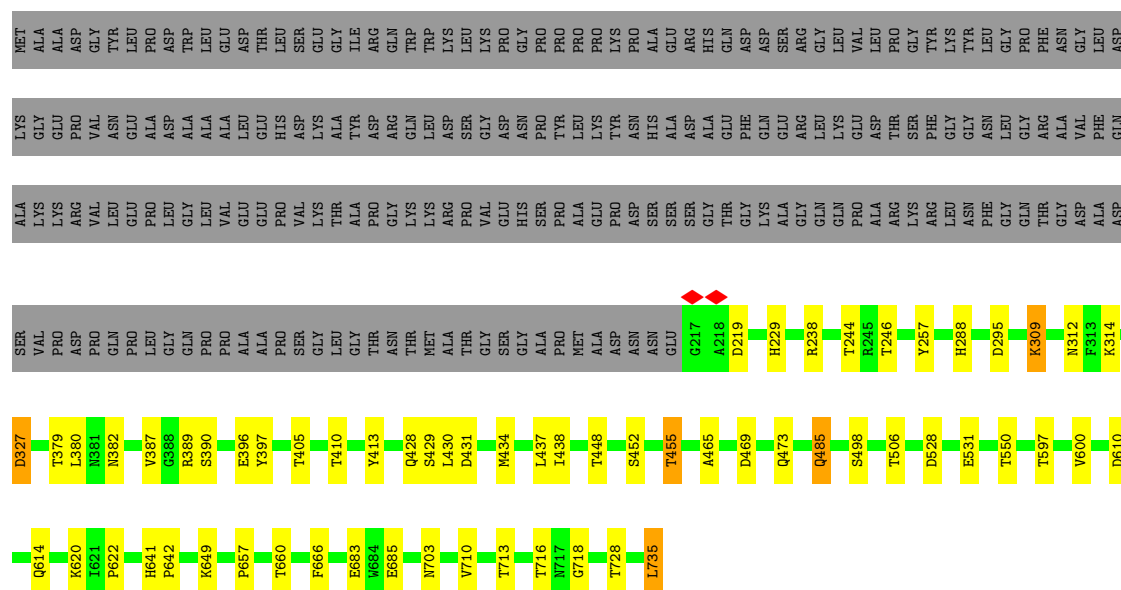


• Molecule 1: Capsid protein VP1

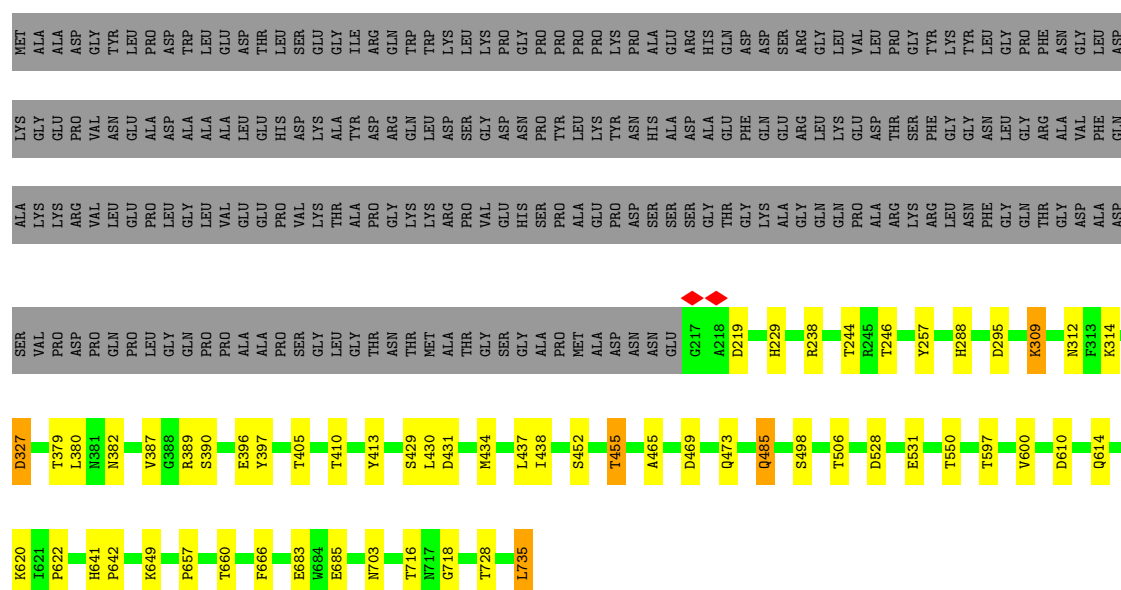
Chain x: 62% 8% 29%



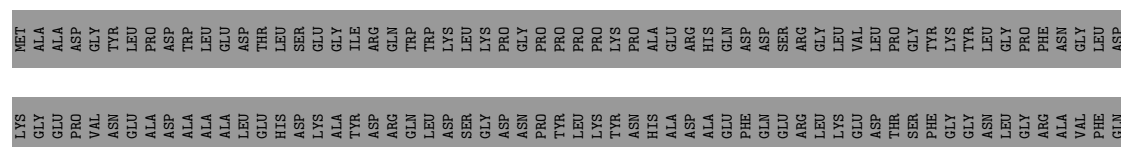


Chain z:  62% 8% 29%

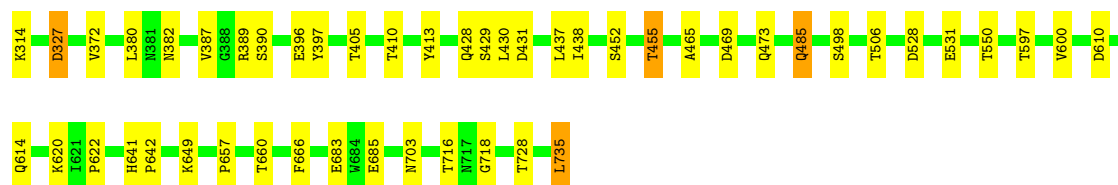
• Molecule 1: Capsid protein VP1

Chain 0:  63% 7% 29%

• Molecule 1: Capsid protein VP1

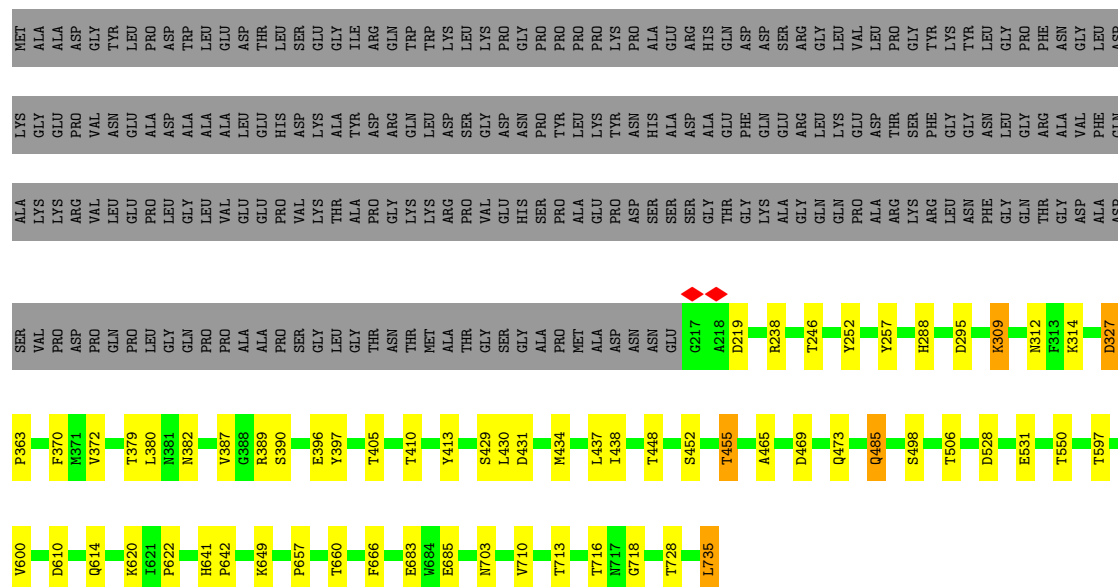
Chain 1:  62% 8% 29%





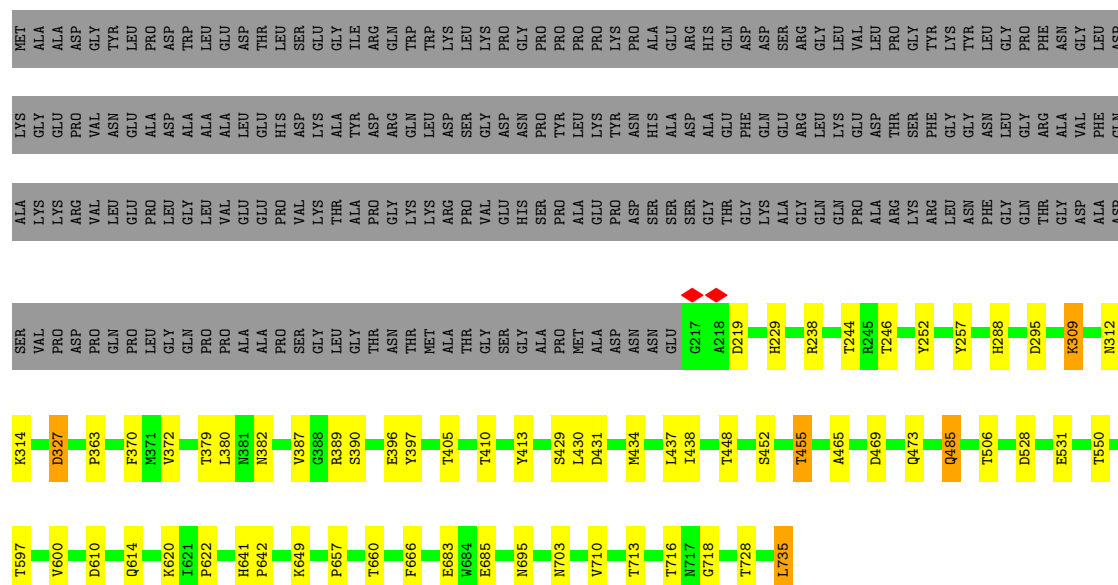
- Molecule 1: Capsid protein VP1

Chain 4: 62% 8% 29%



- Molecule 1: Capsid protein VP1

Chain 5: 62% 8% 29%



- Molecule 1: Capsid protein VP1

29%



29%



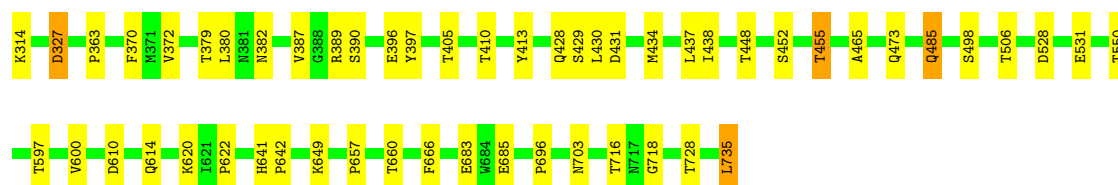
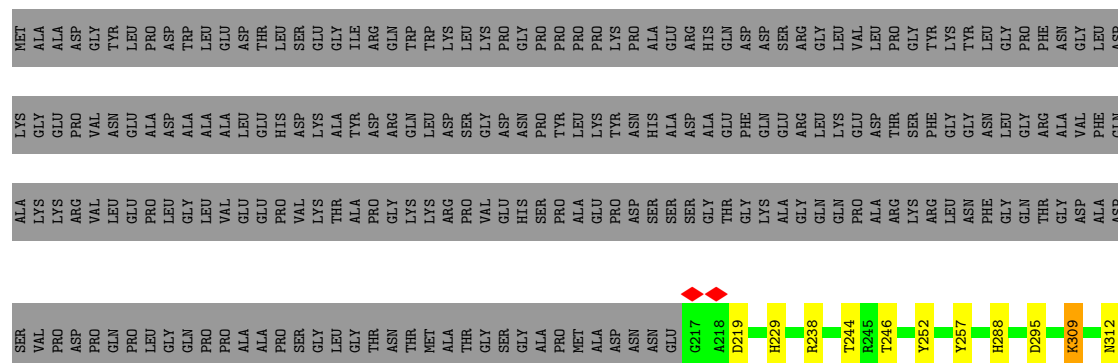
29%





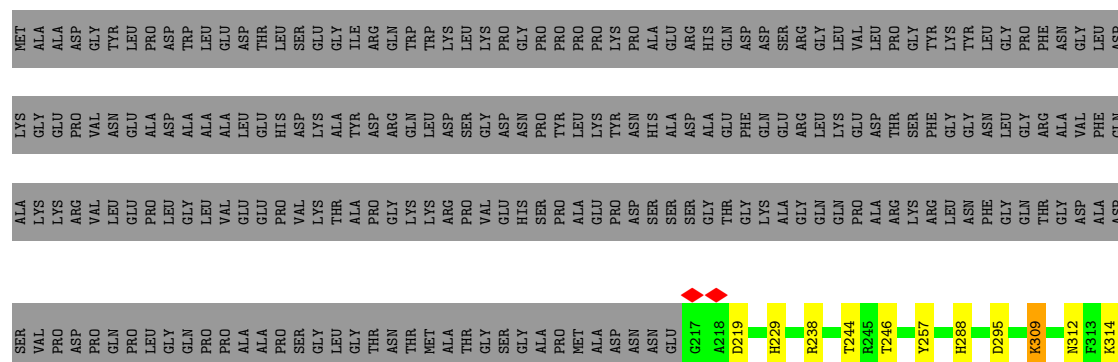
• Molecule 1: Capsid protein VP1

Chain I: 62% 8% 29%



• Molecule 1: Capsid protein VP1

Chain J: 62% 7% 29%



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	52874	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	48.62	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	22.946	Depositor
Minimum map value	-7.268	Depositor
Average map value	0.000	Depositor
Map value standard deviation	1.000	Depositor
Recommended contour level	3.6	Depositor
Map size ($\text{\AA}$)	609.984, 609.984, 609.984	wwPDB
Map dimensions	576, 576, 576	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	1.059, 1.059, 1.059	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	0	0.38	0/4261	0.38	0/5811
1	1	0.38	0/4261	0.38	0/5811
1	2	0.38	0/4261	0.38	0/5811
1	3	0.38	0/4261	0.38	0/5811
1	4	0.38	0/4261	0.38	0/5811
1	5	0.38	0/4261	0.38	0/5811
1	6	0.38	0/4261	0.38	0/5811
1	7	0.38	0/4261	0.38	0/5811
1	A	0.38	0/4261	0.38	0/5811
1	B	0.38	0/4261	0.38	0/5811
1	C	0.38	0/4261	0.38	0/5811
1	D	0.38	0/4261	0.38	0/5811
1	E	0.38	0/4261	0.38	0/5811
1	F	0.38	0/4261	0.38	0/5811
1	G	0.38	0/4261	0.38	0/5811
1	H	0.38	0/4261	0.38	0/5811
1	I	0.38	0/4261	0.38	0/5811
1	J	0.38	0/4261	0.38	0/5811
1	K	0.38	0/4261	0.38	0/5811
1	L	0.38	0/4261	0.38	0/5811
1	M	0.38	0/4261	0.38	0/5811
1	N	0.38	0/4261	0.38	0/5811
1	O	0.38	0/4261	0.38	0/5811
1	P	0.38	0/4261	0.38	0/5811
1	Q	0.38	0/4261	0.38	0/5811
1	R	0.38	0/4261	0.38	0/5811
1	S	0.38	0/4261	0.38	0/5811
1	T	0.38	0/4261	0.38	0/5811
1	U	0.38	0/4261	0.38	0/5811
1	V	0.38	0/4261	0.38	0/5811
1	W	0.38	0/4261	0.38	0/5811
1	X	0.38	0/4261	0.38	0/5811
1	Y	0.38	0/4261	0.38	0/5811
1	Z	0.38	0/4261	0.38	0/5811

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	a	0.38	0/4261	0.38	0/5811
1	b	0.38	0/4261	0.38	0/5811
1	c	0.38	0/4261	0.38	0/5811
1	d	0.38	0/4261	0.38	0/5811
1	e	0.38	0/4261	0.38	0/5811
1	f	0.38	0/4261	0.38	0/5811
1	g	0.38	0/4261	0.38	0/5811
1	h	0.38	0/4261	0.38	0/5811
1	i	0.38	0/4261	0.38	0/5811
1	j	0.38	0/4261	0.38	0/5811
1	k	0.38	0/4261	0.38	0/5811
1	l	0.38	0/4261	0.38	0/5811
1	m	0.38	0/4261	0.38	0/5811
1	n	0.38	0/4261	0.38	0/5811
1	o	0.38	0/4261	0.38	0/5811
1	p	0.38	0/4261	0.38	0/5811
1	q	0.38	0/4261	0.38	0/5811
1	r	0.38	0/4261	0.38	0/5811
1	s	0.38	0/4261	0.38	0/5811
1	t	0.38	0/4261	0.38	0/5811
1	u	0.38	0/4261	0.38	0/5811
1	v	0.38	0/4261	0.38	0/5811
1	w	0.38	0/4261	0.38	0/5811
1	x	0.38	0/4261	0.38	0/5811
1	y	0.38	0/4261	0.38	0/5811
1	z	0.38	0/4261	0.38	0/5811
All	All	0.38	0/255660	0.38	0/348660

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 ⓘ

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	0	4138	0	3887	32	0
1	1	4138	0	3887	33	0
1	2	4138	0	3887	28	0
1	3	4138	0	3887	31	0
1	4	4138	0	3887	35	0
1	5	4138	0	3887	35	0
1	6	4138	0	3887	32	0
1	7	4138	0	3887	29	0
1	A	4138	0	3887	29	0
1	B	4138	0	3887	34	0
1	C	4138	0	3887	30	0
1	D	4138	0	3887	34	0
1	E	4138	0	3887	33	0
1	F	4138	0	3887	30	0
1	G	4138	0	3887	35	0
1	H	4138	0	3887	35	0
1	I	4138	0	3887	35	0
1	J	4138	0	3887	30	0
1	K	4138	0	3887	32	0
1	L	4138	0	3887	32	0
1	M	4138	0	3887	33	0
1	N	4138	0	3887	33	0
1	O	4138	0	3887	35	0
1	P	4138	0	3887	32	0
1	Q	4138	0	3887	32	0
1	R	4138	0	3887	38	0
1	S	4138	0	3887	29	0
1	T	4138	0	3887	31	0
1	U	4138	0	3887	32	0
1	V	4138	0	3887	33	0
1	W	4138	0	3887	30	0
1	X	4138	0	3887	32	0
1	Y	4138	0	3887	32	0
1	Z	4138	0	3887	34	0
1	a	4138	0	3887	32	0
1	b	4138	0	3887	33	0
1	c	4138	0	3887	34	0
1	d	4138	0	3887	36	0
1	e	4138	0	3887	32	0
1	f	4138	0	3887	33	0
1	g	4138	0	3887	36	0
1	h	4138	0	3887	34	0
1	i	4138	0	3887	35	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	j	4138	0	3887	32	0
1	k	4138	0	3887	32	0
1	l	4138	0	3887	36	0
1	m	4138	0	3887	36	0
1	n	4138	0	3887	32	0
1	o	4138	0	3887	33	0
1	p	4138	0	3887	33	0
1	q	4138	0	3887	38	0
1	r	4138	0	3887	34	0
1	s	4138	0	3887	34	0
1	t	4138	0	3887	31	0
1	u	4138	0	3887	31	0
1	v	4138	0	3887	34	0
1	w	4138	0	3887	34	0
1	x	4138	0	3887	35	0
1	y	4138	0	3887	32	0
1	z	4138	0	3887	33	0
All	All	248280	0	233220	1760	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 4.

The worst 5 of 1760 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:n:657:PRO:HB3	1:n:666:PHE:HZ	1.59	0.68
1:e:657:PRO:HB3	1:e:666:PHE:HZ	1.59	0.68
1:l:657:PRO:HB3	1:l:666:PHE:HZ	1.59	0.68
1:o:657:PRO:HB3	1:o:666:PHE:HZ	1.59	0.68
1:A:657:PRO:HB3	1:A:666:PHE:HZ	1.59	0.68

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	0	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	1	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	2	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	3	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	4	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	5	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	6	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	7	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	A	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	B	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	C	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	D	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	E	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	F	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	G	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	H	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	I	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	J	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	K	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	L	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	M	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	N	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	O	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	P	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	Q	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	R	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	S	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	T	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	U	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	V	517/735 (70%)	501 (97%)	16 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	W	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	X	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	Y	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	Z	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	a	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	b	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	c	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	d	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	e	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	f	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	g	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	h	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	i	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	j	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	k	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	l	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	m	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	n	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	o	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	p	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	q	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	r	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	s	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	t	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	u	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	v	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	w	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	x	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	y	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
1	z	517/735 (70%)	501 (97%)	16 (3%)	0	100	100
All	All	31020/44100 (70%)	30060 (97%)	960 (3%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	0	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	1	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	2	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	3	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	4	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	5	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	6	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	7	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	A	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	B	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	C	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	D	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	E	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	F	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	G	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	H	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	I	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	J	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	K	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	L	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	M	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	N	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	O	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	P	458/628 (73%)	439 (96%)	19 (4%)	27	40

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	Q	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	R	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	S	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	T	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	U	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	V	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	W	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	X	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	Y	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	Z	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	a	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	b	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	c	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	d	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	e	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	f	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	g	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	h	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	i	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	j	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	k	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	l	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	m	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	n	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	o	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	p	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	q	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	r	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	s	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	t	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	u	458/628 (73%)	439 (96%)	19 (4%)	27	40

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	v	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	w	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	x	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	y	458/628 (73%)	439 (96%)	19 (4%)	27	40
1	z	458/628 (73%)	439 (96%)	19 (4%)	27	40
All	All	27480/37680 (73%)	26340 (96%)	1140 (4%)	28	40

5 of 1140 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	1	600	VAL
1	3	309	LYS
1	1	597	THR
1	7	600	VAL
1	c	430	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 1024 such sidechains are listed below:

Mol	Chain	Res	Type
1	7	319	GLN
1	F	677	GLN
1	7	303	ASN
1	C	677	GLN
1	C	334	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides 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.

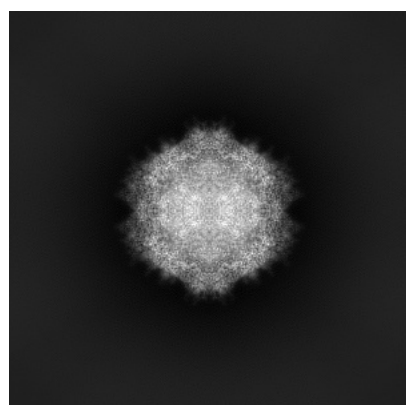
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-20630. These allow visual inspection of the internal detail of the map and identification of artifacts.

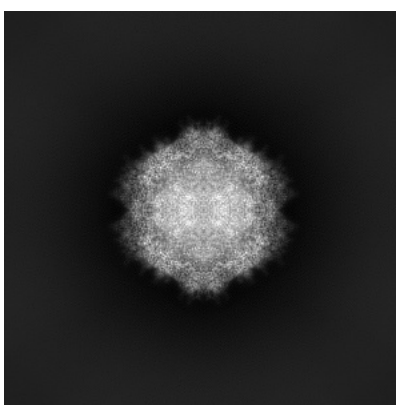
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

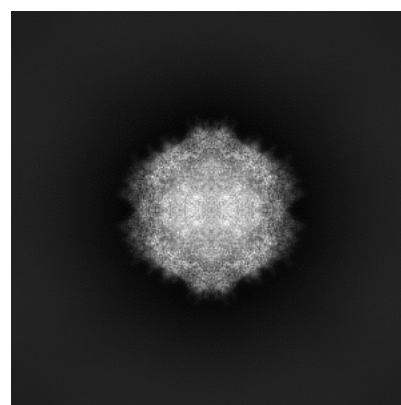
6.1.1 Primary map



X



Y

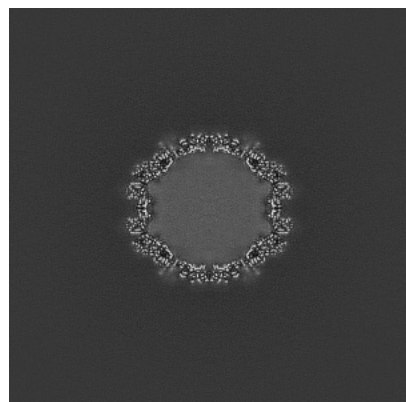


Z

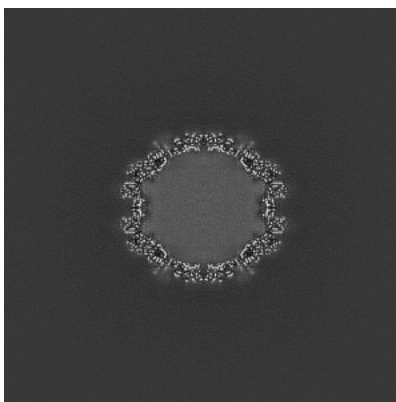
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

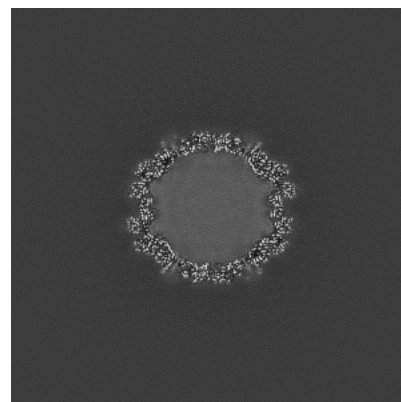
6.2.1 Primary map



X Index: 288



Y Index: 288

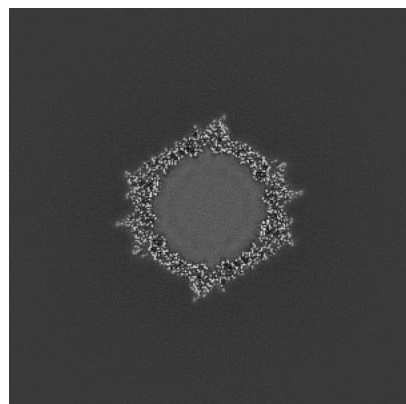


Z Index: 288

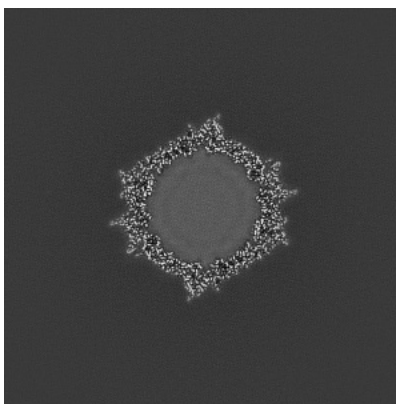
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

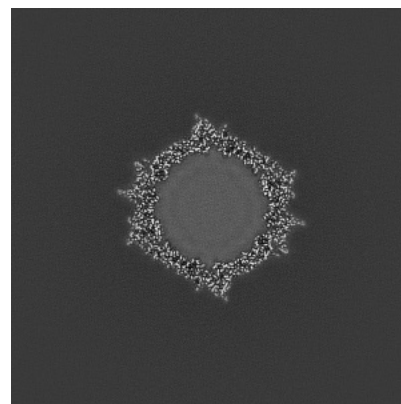
6.3.1 Primary map



X Index: 308



Y Index: 308

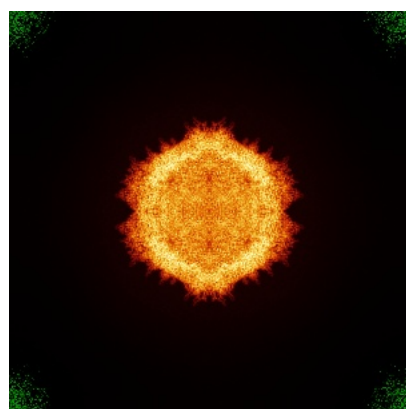


Z Index: 267

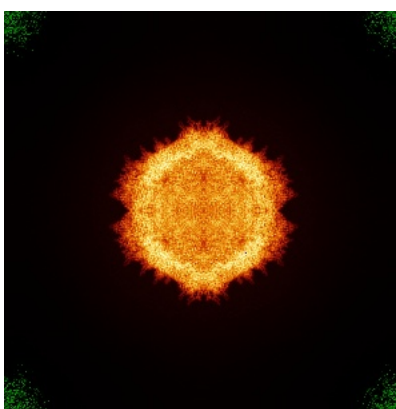
The images above show the largest variance slices of the map in three orthogonal directions.

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

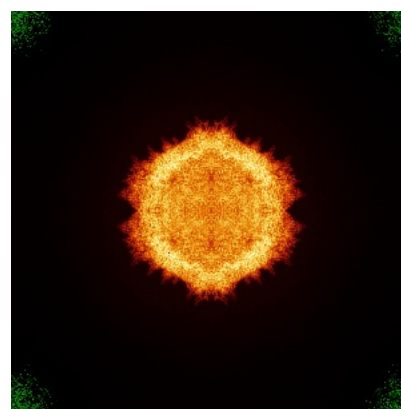
6.4.1 Primary map



X



Y

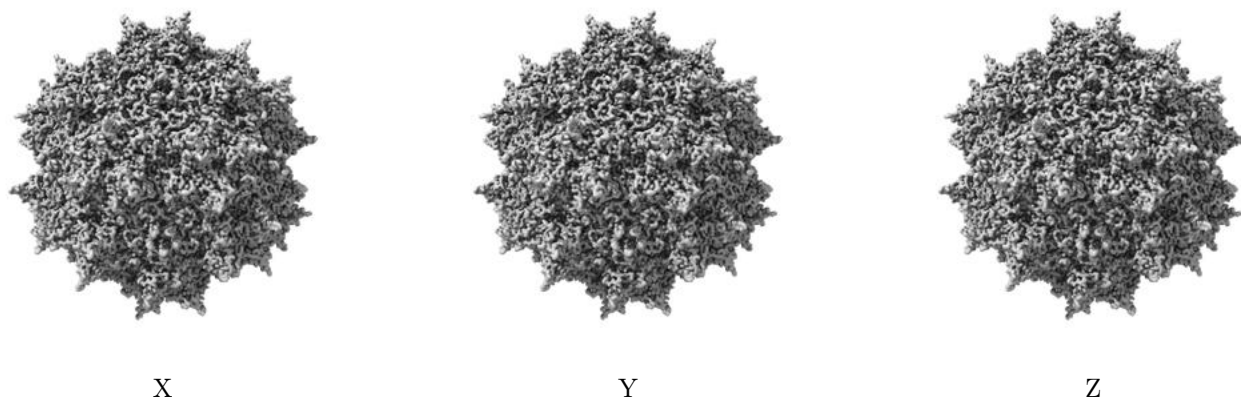


Z

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

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 3.6. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

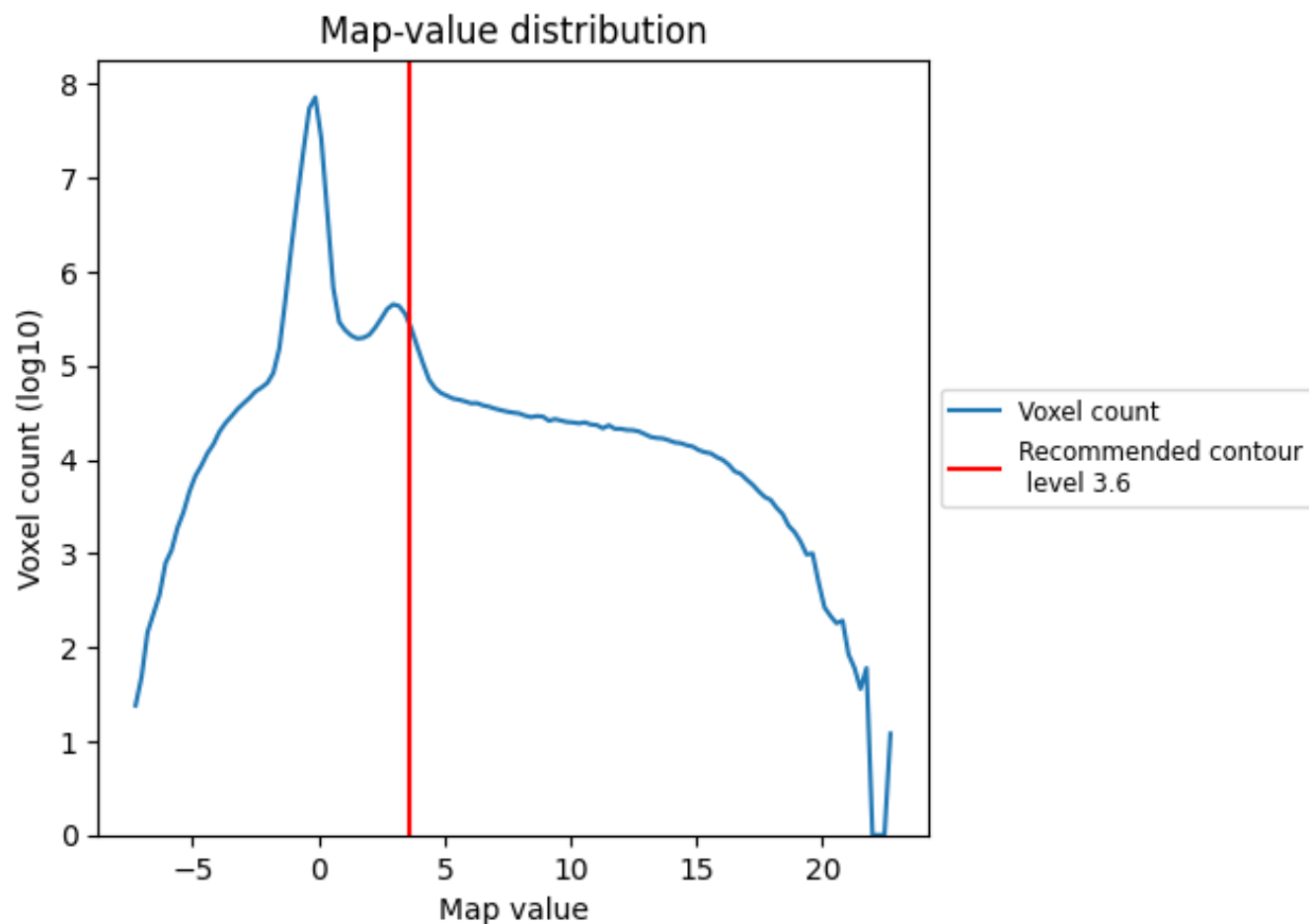
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

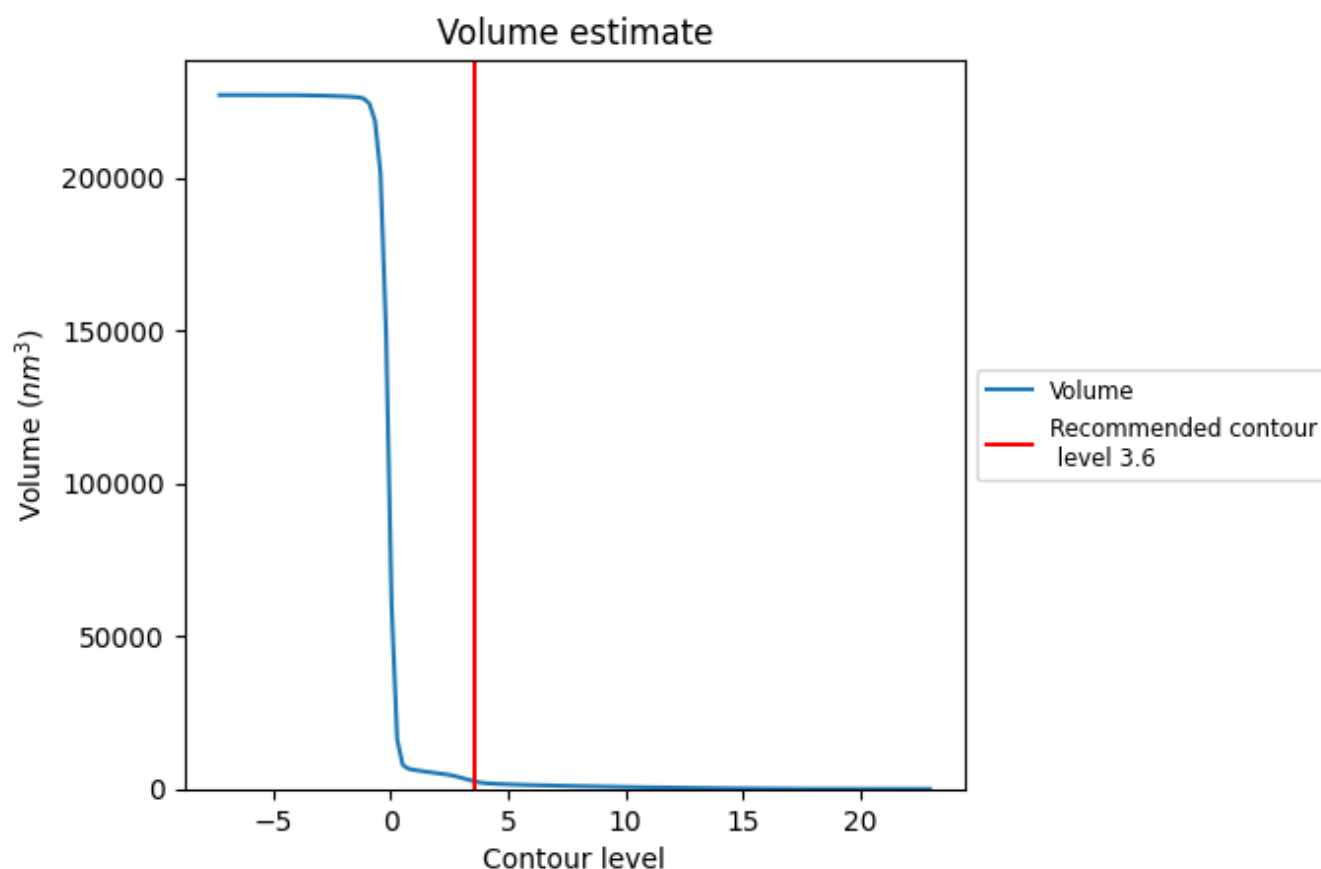
This section contains the results of statistical analysis of the map.

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.

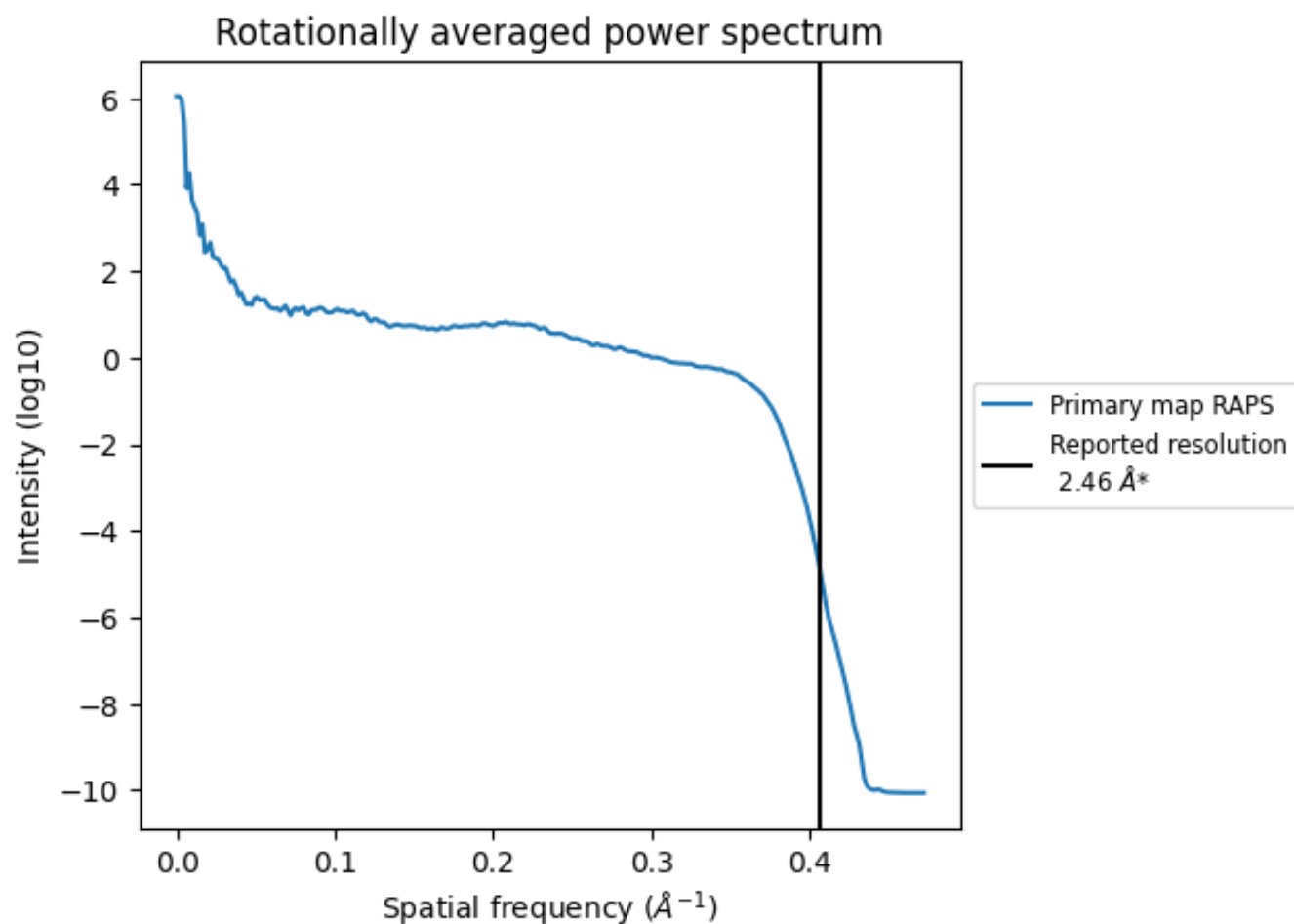
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 2421 nm^3 ; this corresponds to an approximate mass of 2187 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum ⓘ



*Reported resolution corresponds to spatial frequency of 0.407 $\text{\AA}^{-1}$

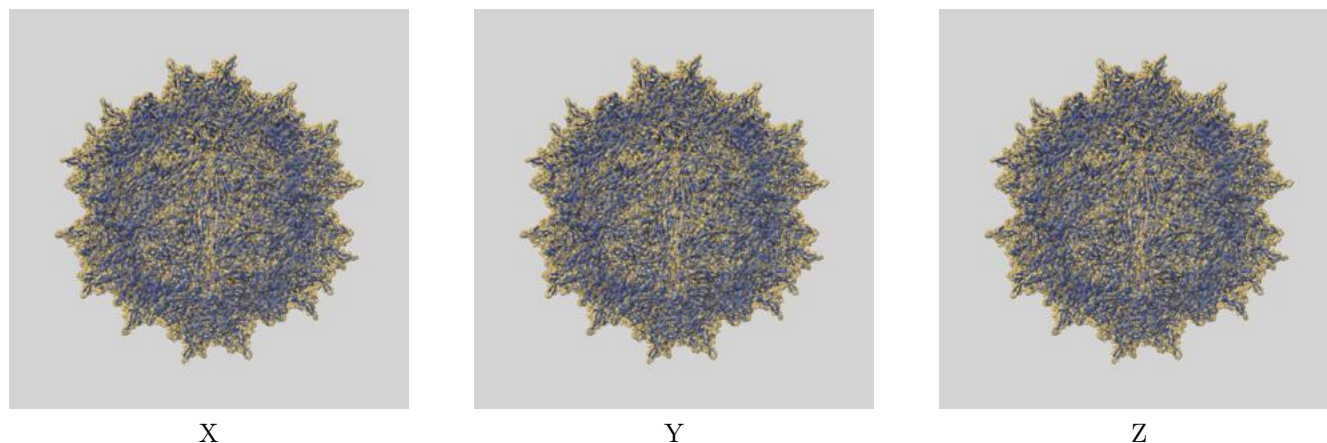
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

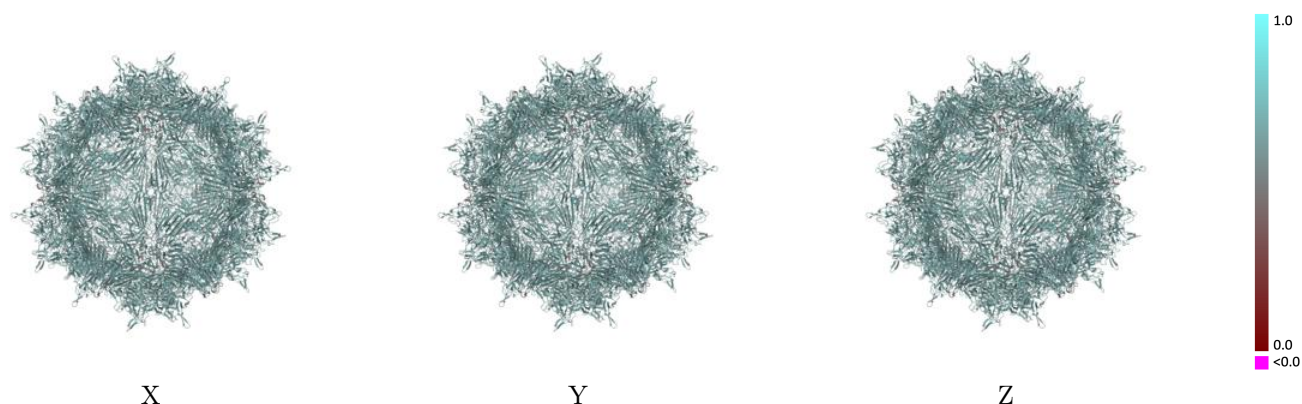
This section contains information regarding the fit between EMDB map EMD-20630 and PDB model 6U3Q. Per-residue inclusion information can be found in [section 3](#) on [page 18](#).

9.1 Map-model overlay [i](#)



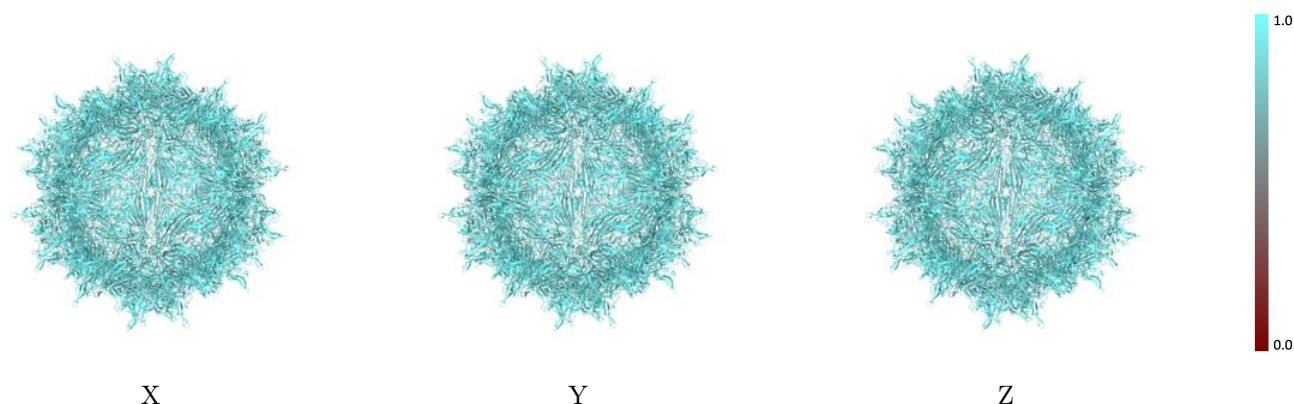
The images above show the 3D surface view of the map at the recommended contour level 3.6 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



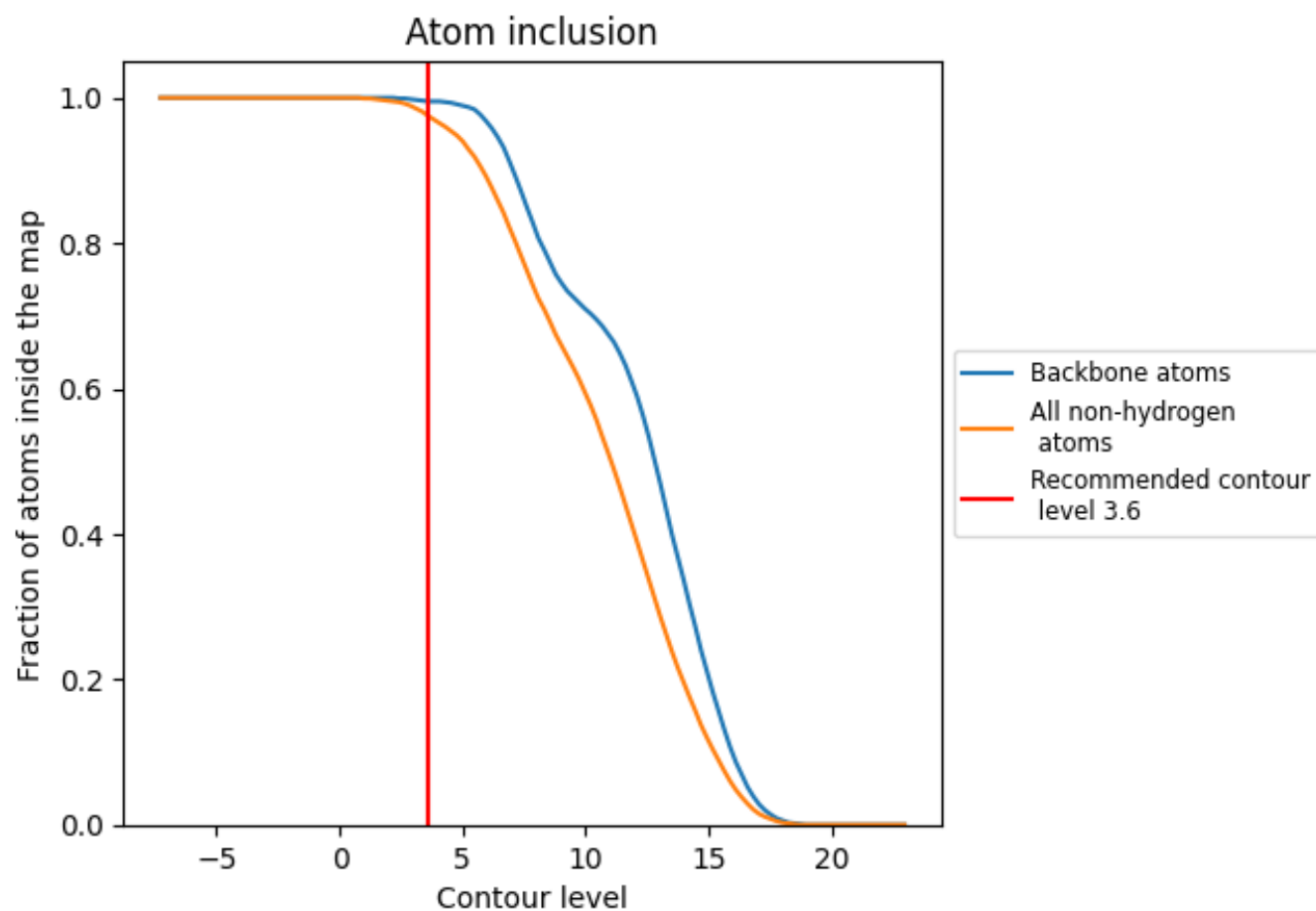
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (3.6).

9.4 Atom inclusion [i](#)



At the recommended contour level, 100% of all backbone atoms, 98% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (3.6) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9750	 0.6300
0	 0.9760	 0.6290
1	 0.9760	 0.6290
2	 0.9760	 0.6300
3	 0.9760	 0.6290
4	 0.9750	 0.6290
5	 0.9760	 0.6300
6	 0.9760	 0.6300
7	 0.9760	 0.6300
A	 0.9760	 0.6290
B	 0.9760	 0.6290
C	 0.9760	 0.6310
D	 0.9750	 0.6300
E	 0.9760	 0.6300
F	 0.9750	 0.6280
G	 0.9750	 0.6280
H	 0.9750	 0.6290
I	 0.9760	 0.6300
J	 0.9760	 0.6300
K	 0.9750	 0.6300
L	 0.9760	 0.6300
M	 0.9760	 0.6300
N	 0.9740	 0.6300
O	 0.9760	 0.6300
P	 0.9760	 0.6290
Q	 0.9770	 0.6300
R	 0.9750	 0.6290
S	 0.9750	 0.6300
T	 0.9760	 0.6290
U	 0.9760	 0.6300
V	 0.9750	 0.6290
W	 0.9760	 0.6290
X	 0.9750	 0.6300
Y	 0.9760	 0.6300
Z	 0.9760	 0.6290



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Chain	Atom inclusion	Q-score
a	 0.9760	 0.6300
b	 0.9750	 0.6300
c	 0.9750	 0.6290
d	 0.9750	 0.6290
e	 0.9740	 0.6290
f	 0.9760	 0.6290
g	 0.9760	 0.6310
h	 0.9770	 0.6290
i	 0.9750	 0.6290
j	 0.9760	 0.6300
k	 0.9750	 0.6300
l	 0.9770	 0.6300
m	 0.9740	 0.6300
n	 0.9740	 0.6290
o	 0.9740	 0.6290
p	 0.9760	 0.6290
q	 0.9760	 0.6290
r	 0.9740	 0.6310
s	 0.9760	 0.6310
t	 0.9750	 0.6290
u	 0.9740	 0.6300
v	 0.9760	 0.6290
w	 0.9760	 0.6290
x	 0.9760	 0.6300
y	 0.9760	 0.6300
z	 0.9750	 0.6300