wwPDB X-ray Structure Validation Summary Report (i)

Jan 30, 2023 – 01:24 pm GMT

PDB ID	:	7PA6
Title	:	JC polyomavirus VP1 in complex with scFv 27C11
Authors	:	Harprecht, C.; Stroeh, L.J.; Nagel, F.; Freytag, J.; Stehle, T.
Deposited on	:	2021-07-29
Resolution	:	1.90 Å(reported)

This is a wwPDB X-ray Structure 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/XrayValidationReportHelp
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:

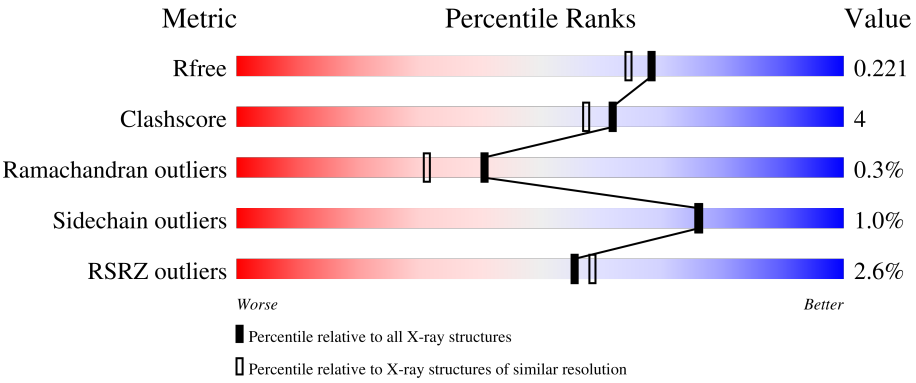
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.31.3
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.31.3

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 1.90 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)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	6207 (1.90-1.90)
Clashscore	141614	6847 (1.90-1.90)
Ramachandran outliers	138981	6760 (1.90-1.90)
Sidechain outliers	138945	6760 (1.90-1.90)
RSRZ outliers	127900	6082 (1.90-1.90)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower 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 electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	KKK	253	82% 12% 6%
1	LLL	253	85% 9% 6%
1	MMM	253	12% 73% 18% 9%
1	NNN	253	3% 81% 11% 9%
1	OOO	253	81% 12% 7%

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Mol	Chain	Length	Quality of chain
1	PPP	253	11% 79% 13% 9%
1	QQQ	253	2% 75% 16% 8%
1	RRR	253	% 78% 15% 7%
1	SSS	253	82% 12% 6%
1	TTT	253	85% 8% 6%
2	AAA	272	3% 87% 12%
2	BBB	272	% 88% 8%
2	CCC	272	2% 88% 9%
2	DDD	272	2% 88% 8%
2	EEE	272	2% 89% 7%
2	FFF	272	% 92%
2	GGG	272	3% 89% 7%
2	HHH	272	3% 90% 7%
2	III	272	2% 89% 7%
2	JJJ	272	% 85% 12%

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 40319 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, 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 scFv 27C11 antibody heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	KKK	238	Total	C	N	O	S	0	0	0
			1805	1142	302	354	7			
1	LLL	238	Total	C	N	O	S	0	0	0
			1795	1136	300	352	7			
1	MMM	230	Total	C	N	O	S	0	0	0
			1690	1064	285	334	7			
1	NNN	231	Total	C	N	O	S	0	1	0
			1753	1105	297	344	7			
1	OOO	235	Total	C	N	O	S	0	1	0
			1772	1124	298	343	7			
1	PPP	231	Total	C	N	O	S	0	1	0
			1710	1074	287	343	6			
1	QQQ	232	Total	C	N	O	S	0	1	0
			1758	1109	297	346	6			
1	RRR	236	Total	C	N	O	S	0	0	0
			1774	1119	299	349	7			
1	SSS	237	Total	C	N	O	S	0	0	0
			1786	1129	296	354	7			
1	TTT	238	Total	C	N	O	S	0	0	0
			1775	1121	299	348	7			

- Molecule 2 is a protein called Major capsid protein VP1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	AAA	268	Total	C	N	O	S	0	2	0
			2071	1302	356	401	12			
2	BBB	261	Total	C	N	O	S	0	1	0
			2030	1279	350	390	11			
2	CCC	264	Total	C	N	O	S	0	4	0
			2067	1304	357	394	12			
2	DDD	262	Total	C	N	O	S	0	2	0
			2032	1282	350	389	11			

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	EEE	261	Total	C	N	O	S	0	3	0
			2049	1290	354	394	11			
2	FFF	260	Total	C	N	O	S	0	4	0
			2026	1277	347	391	11			
2	GGG	261	Total	C	N	O	S	0	3	0
			2046	1291	352	392	11			
2	HHH	262	Total	C	N	O	S	0	5	0
			2058	1301	354	392	11			
2	III	263	Total	C	N	O	S	0	1	0
			2027	1275	350	391	11			
2	JJJ	264	Total	C	N	O	S	0	2	0
			2046	1288	355	391	12			

There are 40 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AAA	18	GLY	-	expression tag	UNP P03089
AAA	19	SER	-	expression tag	UNP P03089
AAA	20	HIS	-	expression tag	UNP P03089
AAA	21	MET	-	expression tag	UNP P03089
BBB	18	GLY	-	expression tag	UNP P03089
BBB	19	SER	-	expression tag	UNP P03089
BBB	20	HIS	-	expression tag	UNP P03089
BBB	21	MET	-	expression tag	UNP P03089
CCC	18	GLY	-	expression tag	UNP P03089
CCC	19	SER	-	expression tag	UNP P03089
CCC	20	HIS	-	expression tag	UNP P03089
CCC	21	MET	-	expression tag	UNP P03089
DDD	18	GLY	-	expression tag	UNP P03089
DDD	19	SER	-	expression tag	UNP P03089
DDD	20	HIS	-	expression tag	UNP P03089
DDD	21	MET	-	expression tag	UNP P03089
EEE	18	GLY	-	expression tag	UNP P03089
EEE	19	SER	-	expression tag	UNP P03089
EEE	20	HIS	-	expression tag	UNP P03089
EEE	21	MET	-	expression tag	UNP P03089
FFF	18	GLY	-	expression tag	UNP P03089
FFF	19	SER	-	expression tag	UNP P03089
FFF	20	HIS	-	expression tag	UNP P03089
FFF	21	MET	-	expression tag	UNP P03089
GGG	18	GLY	-	expression tag	UNP P03089
GGG	19	SER	-	expression tag	UNP P03089
GGG	20	HIS	-	expression tag	UNP P03089

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Chain	Residue	Modelled	Actual	Comment	Reference
GGG	21	MET	-	expression tag	UNP P03089
HHH	18	GLY	-	expression tag	UNP P03089
HHH	19	SER	-	expression tag	UNP P03089
HHH	20	HIS	-	expression tag	UNP P03089
HHH	21	MET	-	expression tag	UNP P03089
III	18	GLY	-	expression tag	UNP P03089
III	19	SER	-	expression tag	UNP P03089
III	20	HIS	-	expression tag	UNP P03089
III	21	MET	-	expression tag	UNP P03089
JJJ	18	GLY	-	expression tag	UNP P03089
JJJ	19	SER	-	expression tag	UNP P03089
JJJ	20	HIS	-	expression tag	UNP P03089
JJJ	21	MET	-	expression tag	UNP P03089

- Molecule 3 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	KKK	112	Total O 112 112	0	0
3	LLL	90	Total O 90 90	0	0
3	MMM	33	Total O 33 33	0	0
3	NNN	85	Total O 85 85	0	0
3	OOO	83	Total O 83 83	0	0
3	PPP	37	Total O 37 37	0	0
3	QQQ	66	Total O 66 66	0	0
3	RRR	106	Total O 106 106	0	0
3	SSS	121	Total O 121 121	0	0
3	TTT	105	Total O 105 105	0	0
3	AAA	144	Total O 144 144	0	0
3	BBB	134	Total O 134 134	0	0
3	CCC	136	Total O 136 136	0	0

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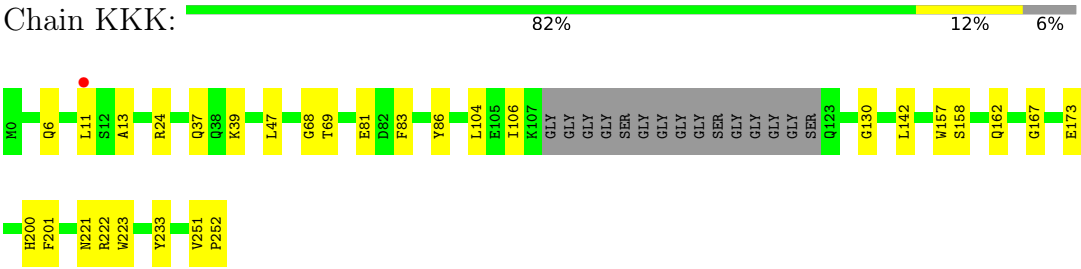
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	DDD	142	Total O 142 142	0	0
3	EEE	145	Total O 145 145	0	0
3	FFF	138	Total O 138 138	0	0
3	GGG	140	Total O 140 140	0	0
3	HHH	143	Total O 143 143	0	0
3	III	150	Total O 150 150	0	0
3	JJJ	139	Total O 139 139	0	0

3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron 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 dot above a residue indicates a poor fit to the electron density (RSRZ > 2). 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.

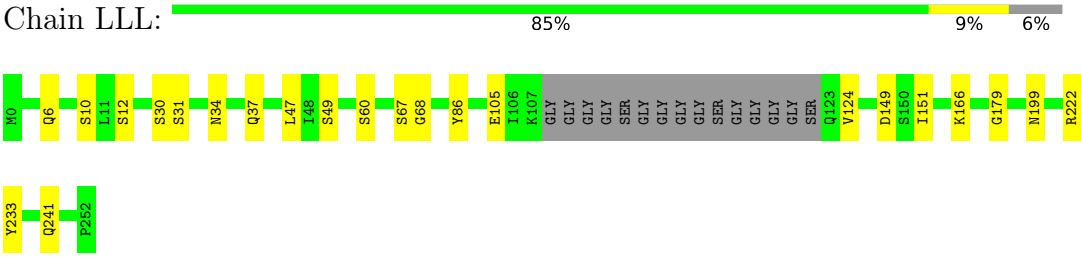
• Molecule 1: scFv 27C11 antibody heavy chain

Chain KKK:



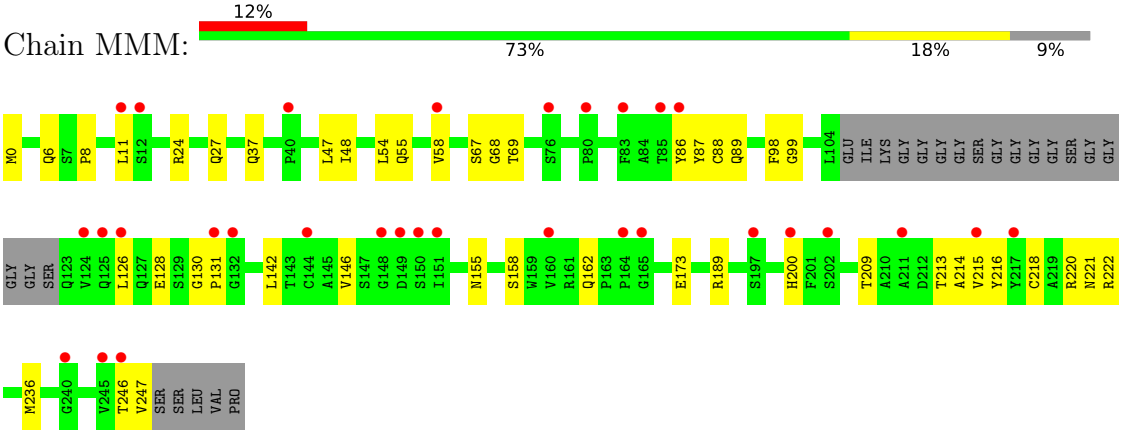
• Molecule 1: scFv 27C11 antibody heavy chain

Chain LLL:



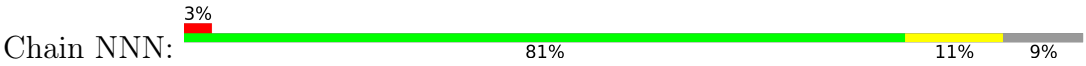
• Molecule 1: scFv 27C11 antibody heavy chain

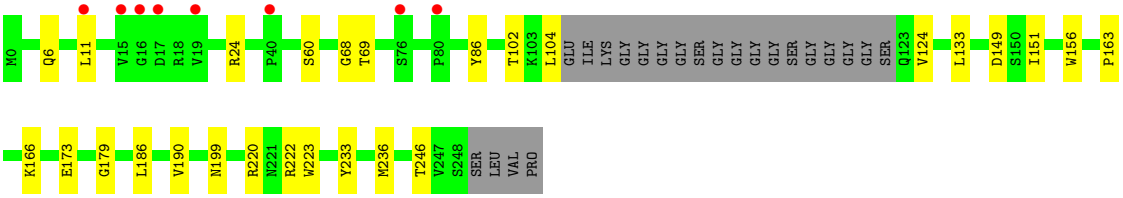
Chain MMM:



• Molecule 1: scFv 27C11 antibody heavy chain

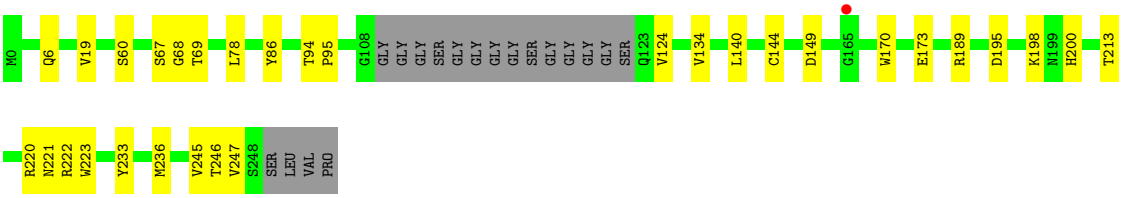
Chain NNN:





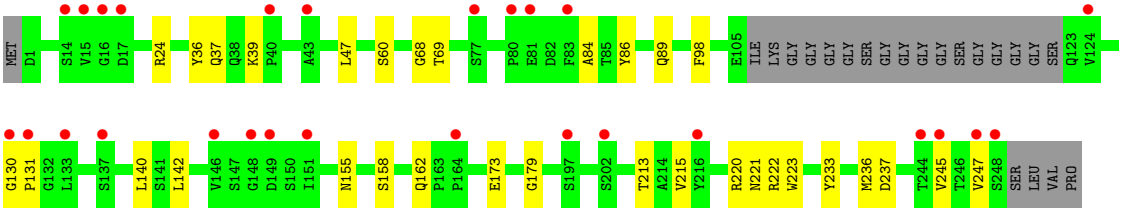
• Molecule 1: scFv 27C11 antibody heavy chain

Chain OOO:



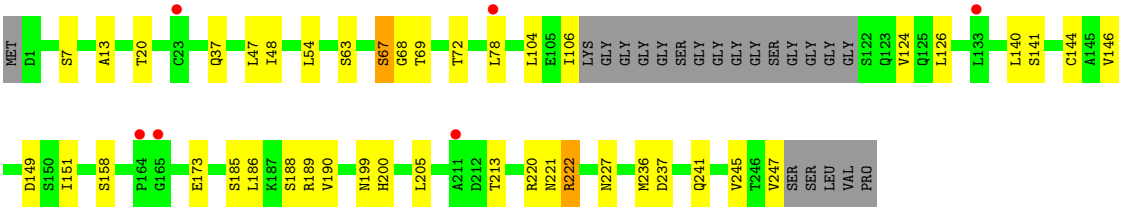
• Molecule 1: scFv 27C11 antibody heavy chain

Chain PPP:



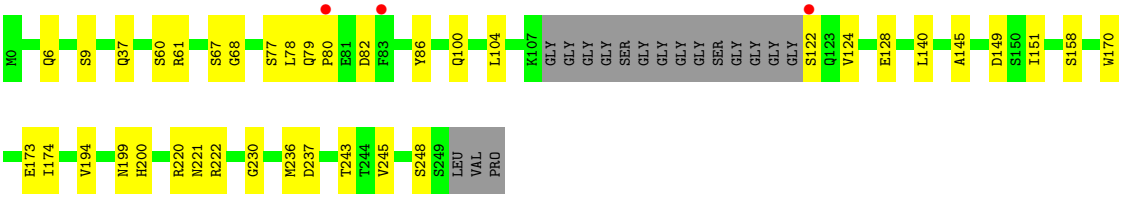
• Molecule 1: scFv 27C11 antibody heavy chain

Chain QQQ:



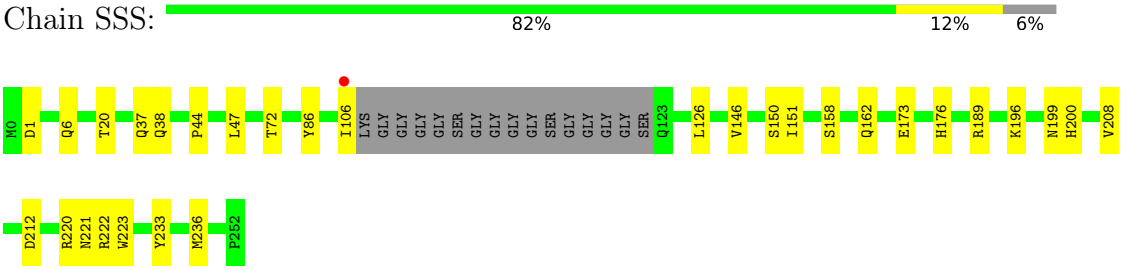
• Molecule 1: scFv 27C11 antibody heavy chain

Chain RRR:



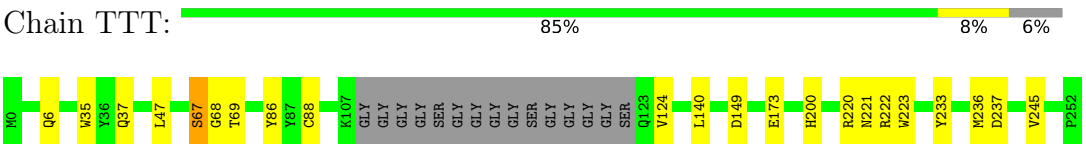
• Molecule 1: scFv 27C11 antibody heavy chain

Chain SSS:



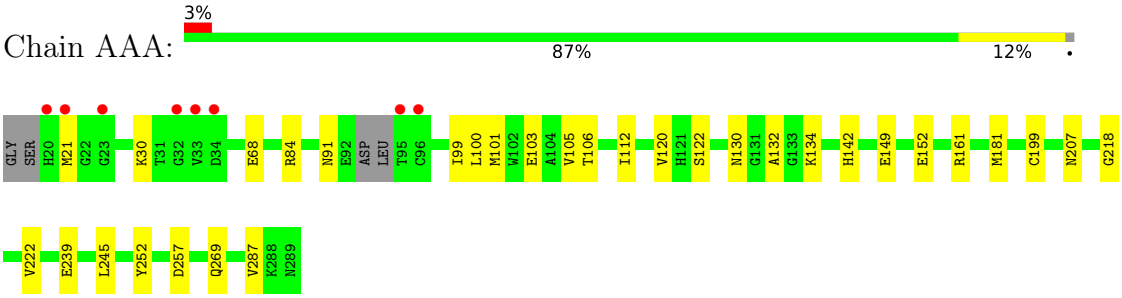
• Molecule 1: scFv 27C11 antibody heavy chain

Chain TTT:



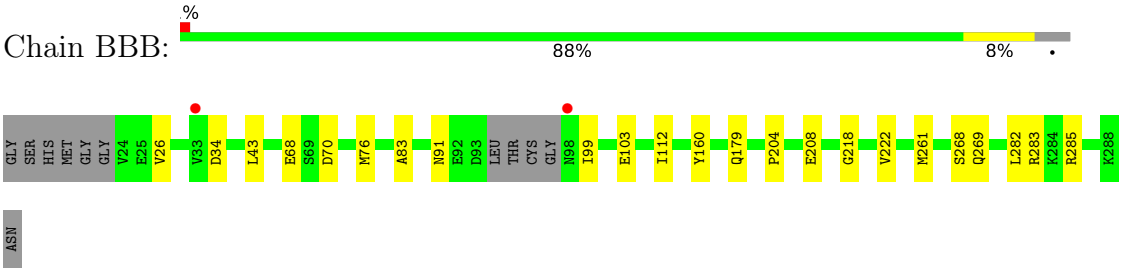
• Molecule 2: Major capsid protein VP1

Chain AAA:



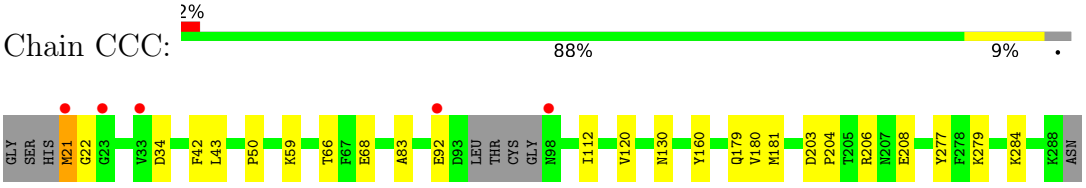
• Molecule 2: Major capsid protein VP1

Chain BBB:



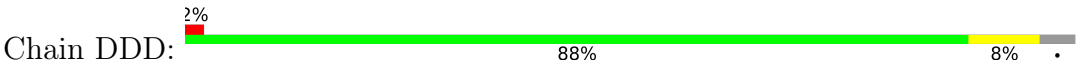
• Molecule 2: Major capsid protein VP1

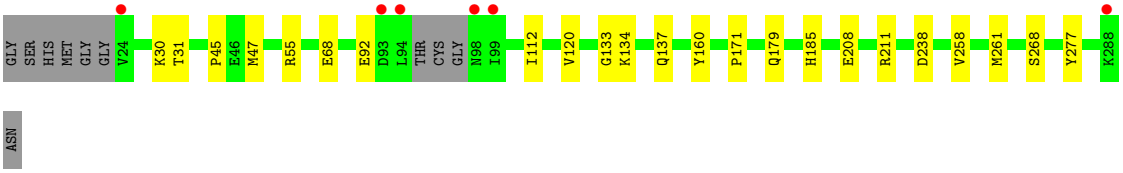
Chain CCC:



• Molecule 2: Major capsid protein VP1

Chain DDD:



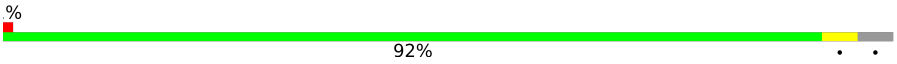


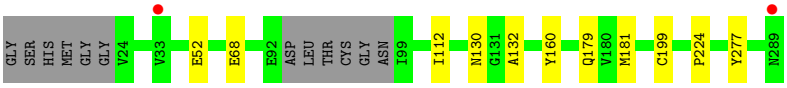
• Molecule 2: Major capsid protein VP1

Chain EEE:

• Molecule 2: Major capsid protein VP1

Chain FFF:





• Molecule 2: Major capsid protein VP1

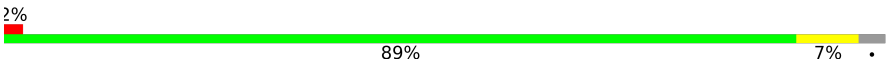
Chain GGG:

• Molecule 2: Major capsid protein VP1

Chain HHH:

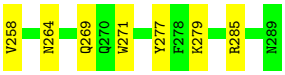
• Molecule 2: Major capsid protein VP1

Chain III:



• Molecule 2: Major capsid protein VP1

Chain JJJ:


V258
N264
Q269
Q270
W271
Y277
F278
K279
R285
N289

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	96.09Å 96.11Å 190.41Å 100.91° 93.01° 113.83°	Depositor
Resolution (Å)	47.81 – 1.90 47.76 – 1.90	Depositor EDS
% Data completeness (in resolution range)	97.6 (47.81-1.90) 97.6 (47.76-1.90)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.00 (at 1.90Å)	Xtriage
Refinement program	REFMAC 5.8.0258	Depositor
R, R_{free}	0.183 , 0.216 0.189 , 0.221	Depositor DCC
R_{free} test set	23290 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å^2)	29.7	Xtriage
Anisotropy	0.087	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 45.6	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	40319	wwPDB-VP
Average B, all atoms (Å^2)	39.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.65% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

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	KKK	0.59	0/1851	0.71	0/2518
1	LLL	0.56	0/1840	0.68	0/2504
1	MMM	0.55	0/1733	0.63	0/2368
1	NNN	0.55	0/1801	0.68	0/2454
1	OOO	0.56	0/1821	0.67	0/2479
1	PPP	0.55	0/1753	0.65	0/2395
1	QQQ	0.55	0/1806	0.65	0/2461
1	RRR	0.58	0/1819	0.70	0/2478
1	SSS	0.57	0/1832	0.68	0/2496
1	TTT	0.58	0/1820	0.66	0/2481
2	AAA	0.59	0/2122	0.73	0/2881
2	BBB	0.58	0/2078	0.72	0/2824
2	CCC	0.58	0/2126	0.73	0/2886
2	DDD	0.59	0/2083	0.77	0/2832
2	EEE	0.59	0/2104	0.76	0/2859
2	FFF	0.58	0/2084	0.72	0/2835
2	GGG	0.59	0/2101	0.72	0/2855
2	HHH	0.61	0/2120	0.75	0/2881
2	III	0.58	0/2075	0.76	0/2821
2	JJJ	0.58	0/2098	0.76	0/2849
All	All	0.58	0/39067	0.71	0/53157

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	KKK	1805	0	1720	15	0
1	LLL	1795	0	1704	12	0
1	MMM	1690	0	1530	28	0
1	NNN	1753	0	1648	15	0
1	OOO	1772	0	1672	17	0
1	PPP	1710	0	1545	20	0
1	QQQ	1758	0	1654	29	0
1	RRR	1774	0	1661	21	0
1	SSS	1786	0	1677	20	0
1	TTT	1775	0	1653	10	0
2	AAA	2071	0	1999	23	0
2	BBB	2030	0	1978	19	0
2	CCC	2067	0	2007	18	0
2	DDD	2032	0	1973	18	0
2	EEE	2049	0	1995	16	0
2	FFF	2026	0	1949	10	0
2	GGG	2046	0	2000	18	0
2	HHH	2058	0	2006	13	0
2	III	2027	0	1948	16	0
2	JJJ	2046	0	1978	30	0
3	AAA	144	0	0	2	0
3	BBB	134	0	0	1	0
3	CCC	136	0	0	0	0
3	DDD	142	0	0	0	0
3	EEE	145	0	0	0	0
3	FFF	138	0	0	0	0
3	GGG	140	0	0	1	0
3	HHH	143	0	0	1	0
3	III	150	0	0	0	0
3	JJJ	139	0	0	1	0
3	KKK	112	0	0	0	0
3	LLL	90	0	0	0	0
3	MMM	33	0	0	0	0
3	NNN	85	0	0	0	0
3	OOO	83	0	0	0	0
3	PPP	37	0	0	0	0
3	QQQ	66	0	0	0	0
3	RRR	106	0	0	0	0
3	SSS	121	0	0	0	0
3	TTT	105	0	0	0	0
All	All	40319	0	36297	330	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 330 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)
2:CCC:160:TYR:H	2:CCC:179:GLN:HE21	1.11	0.98
2:DDD:160:TYR:H	2:DDD:179:GLN:HE21	1.10	0.97
2:BBB:160:TYR:H	2:BBB:179:GLN:HE21	1.13	0.96
2:III:160:TYR:H	2:III:179:GLN:HE21	1.14	0.95
2:GGG:160:TYR:H	2:GGG:179:GLN:HE21	1.17	0.92

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 X-ray entries followed by that with respect to entries of similar resolution.

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	KKK	234/253 (92%)	228 (97%)	5 (2%)	1 (0%)	34 24
1	LLL	234/253 (92%)	228 (97%)	5 (2%)	1 (0%)	34 24
1	MMM	226/253 (89%)	218 (96%)	6 (3%)	2 (1%)	17 7
1	NNN	228/253 (90%)	222 (97%)	5 (2%)	1 (0%)	34 24
1	OOO	232/253 (92%)	228 (98%)	3 (1%)	1 (0%)	34 24
1	PPP	227/253 (90%)	215 (95%)	10 (4%)	2 (1%)	17 7
1	QQQ	229/253 (90%)	223 (97%)	5 (2%)	1 (0%)	34 24
1	RRR	232/253 (92%)	228 (98%)	3 (1%)	1 (0%)	34 24
1	SSS	233/253 (92%)	227 (97%)	6 (3%)	0	100 100
1	TTT	234/253 (92%)	227 (97%)	6 (3%)	1 (0%)	34 24
2	AAA	266/272 (98%)	256 (96%)	10 (4%)	0	100 100
2	BBB	258/272 (95%)	248 (96%)	10 (4%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	CCC	264/272 (97%)	253 (96%)	10 (4%)	1 (0%)	34	24
2	DDD	260/272 (96%)	251 (96%)	8 (3%)	1 (0%)	34	24
2	EEE	260/272 (96%)	249 (96%)	11 (4%)	0	100	100
2	FFF	260/272 (96%)	251 (96%)	9 (4%)	0	100	100
2	GGG	260/272 (96%)	251 (96%)	9 (4%)	0	100	100
2	HHH	263/272 (97%)	254 (97%)	9 (3%)	0	100	100
2	III	260/272 (96%)	249 (96%)	10 (4%)	1 (0%)	34	24
2	JJJ	262/272 (96%)	251 (96%)	11 (4%)	0	100	100
All	All	4922/5250 (94%)	4757 (97%)	151 (3%)	14 (0%)	41	31

5 of 14 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	OOO	68	GLY
1	QQQ	68	GLY
1	LLL	68	GLY
1	MMM	68	GLY
1	PPP	68	GLY

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 X-ray entries followed by that with respect to entries of similar resolution.

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	KKK	196/208 (94%)	193 (98%)	3 (2%)	65	62
1	LLL	191/208 (92%)	186 (97%)	5 (3%)	46	39
1	MMM	171/208 (82%)	168 (98%)	3 (2%)	59	55
1	NNN	187/208 (90%)	186 (100%)	1 (0%)	88	89
1	OOO	186/208 (89%)	183 (98%)	3 (2%)	62	60
1	PPP	174/208 (84%)	174 (100%)	0	100	100
1	QQQ	188/208 (90%)	183 (97%)	5 (3%)	44	38
1	RRR	188/208 (90%)	181 (96%)	7 (4%)	34	25

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	SSS	191/208 (92%)	187 (98%)	4 (2%)	53 48
1	TTT	184/208 (88%)	182 (99%)	2 (1%)	73 73
2	AAA	228/237 (96%)	226 (99%)	2 (1%)	78 79
2	BBB	227/237 (96%)	227 (100%)	0	100 100
2	CCC	229/237 (97%)	228 (100%)	1 (0%)	91 91
2	DDD	225/237 (95%)	225 (100%)	0	100 100
2	EEE	230/237 (97%)	230 (100%)	0	100 100
2	FFF	224/237 (94%)	223 (100%)	1 (0%)	91 91
2	GGG	230/237 (97%)	230 (100%)	0	100 100
2	HHH	230/237 (97%)	227 (99%)	3 (1%)	69 68
2	III	223/237 (94%)	222 (100%)	1 (0%)	91 91
2	JJJ	225/237 (95%)	223 (99%)	2 (1%)	78 79
All	All	4127/4450 (93%)	4084 (99%)	43 (1%)	76 76

5 of 43 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	SSS	106	ILE
2	CCC	21	MET
1	SSS	200	HIS
1	TTT	200	HIS
2	HHH	71[A]	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

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 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å^2)	Q<0.9
1	KKK	238/253 (94%)	-0.32	1 (0%) 92 93	23, 37, 63, 82	0
1	LLL	238/253 (94%)	-0.37	0 100 100	25, 39, 64, 91	0
1	MMM	230/253 (90%)	0.74	31 (13%) 3 3	32, 58, 79, 95	0
1	NNN	231/253 (91%)	-0.04	8 (3%) 44 47	25, 41, 62, 75	0
1	OOO	235/253 (92%)	-0.22	1 (0%) 92 93	24, 42, 65, 90	0
1	PPP	231/253 (91%)	0.59	27 (11%) 4 5	30, 56, 81, 107	0
1	QQQ	232/253 (91%)	-0.03	6 (2%) 56 58	25, 44, 66, 91	0
1	RRR	236/253 (93%)	-0.28	3 (1%) 77 79	22, 37, 62, 95	0
1	SSS	237/253 (93%)	-0.34	1 (0%) 92 93	22, 35, 58, 75	0
1	TTT	238/253 (94%)	-0.46	0 100 100	26, 38, 59, 98	0
2	AAA	268/272 (98%)	-0.13	8 (2%) 50 53	23, 31, 67, 101	0
2	BBB	261/272 (95%)	-0.25	2 (0%) 86 87	25, 33, 58, 89	0
2	CCC	264/272 (97%)	-0.22	5 (1%) 66 69	24, 34, 57, 95	0
2	DDD	262/272 (96%)	-0.12	6 (2%) 60 63	23, 31, 57, 94	0
2	EEE	261/272 (95%)	-0.00	6 (2%) 60 63	22, 30, 54, 97	0
2	FFF	260/272 (95%)	-0.18	2 (0%) 86 87	25, 34, 55, 99	0
2	GGG	261/272 (95%)	-0.13	7 (2%) 54 57	23, 31, 55, 92	0
2	HHH	262/272 (96%)	-0.08	7 (2%) 54 57	21, 30, 55, 92	0
2	III	263/272 (96%)	-0.22	6 (2%) 60 63	22, 30, 56, 90	0
2	JJJ	264/272 (97%)	-0.14	3 (1%) 80 82	25, 33, 56, 101	0
All	All	4972/5250 (94%)	-0.11	130 (2%) 56 58	21, 36, 68, 107	0

The worst 5 of 130 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	AAA	20	HIS	5.6
2	III	33	VAL	5.3
2	HHH	24	VAL	4.8
1	MMM	165	GLY	4.7
2	EEE	289	ASN	4.7

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

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

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

There are no ligands in this entry.

6.5 Other polymers (i)

There are no such residues in this entry.