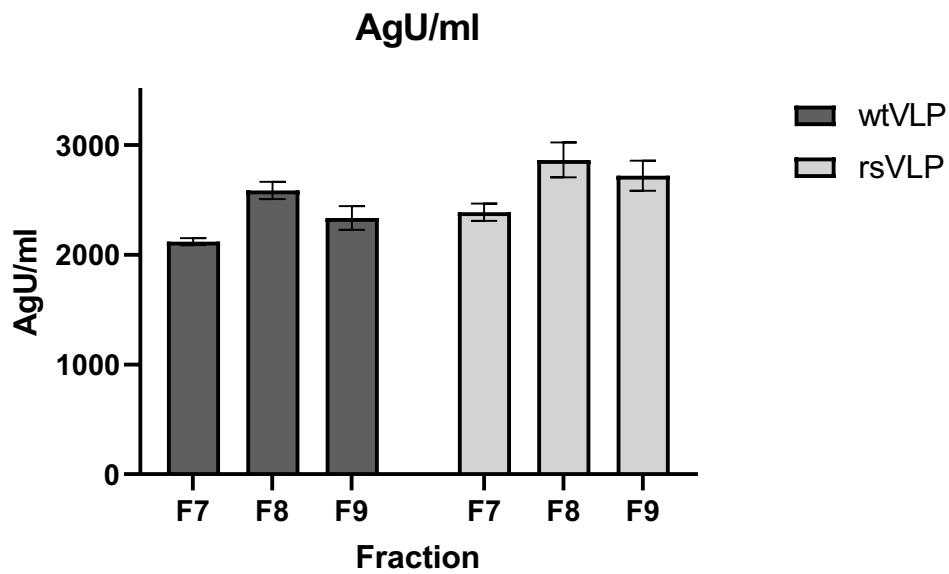


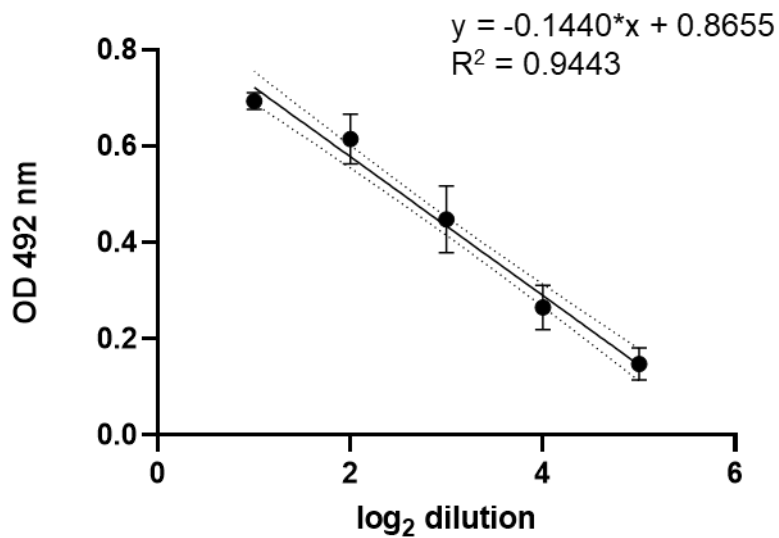
Supplementary material:

Figure S1:



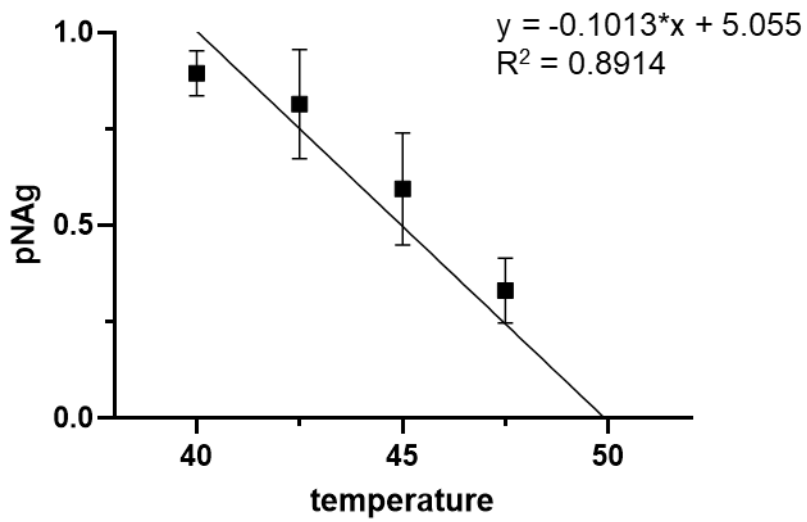
**Figure S1:** Antigen concentration (AgU/ml) of peak VLP fractions determined by the CT11F9 antibody relative to the 18/116 antigen standard.

Figure S2:



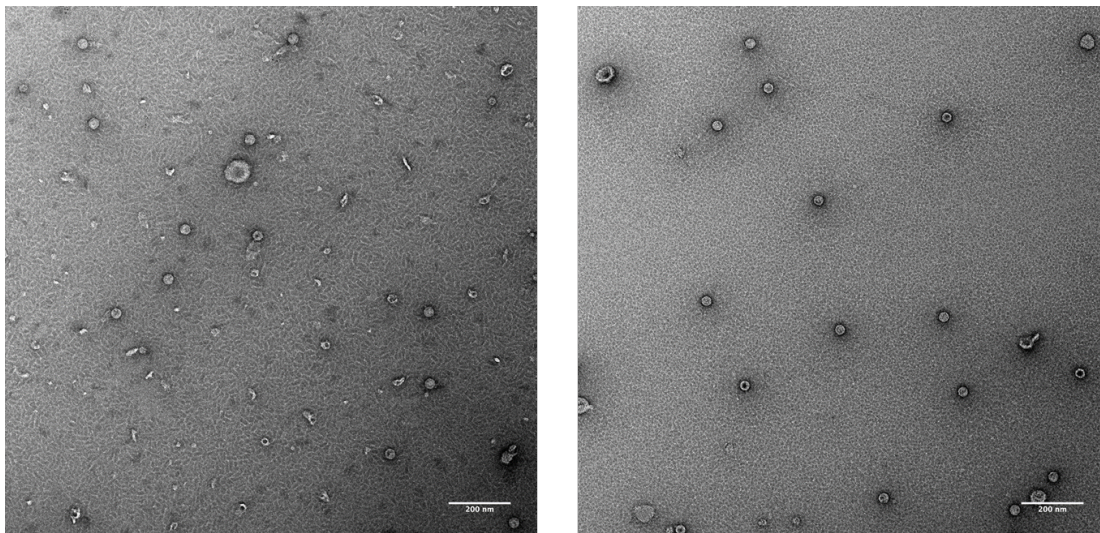
**Figure S2:** Relationship between OD and log<sub>2</sub> dilution of antigen, used to calculate the proportion of HA<sub>g</sub> in samples.

**Figure S3:**



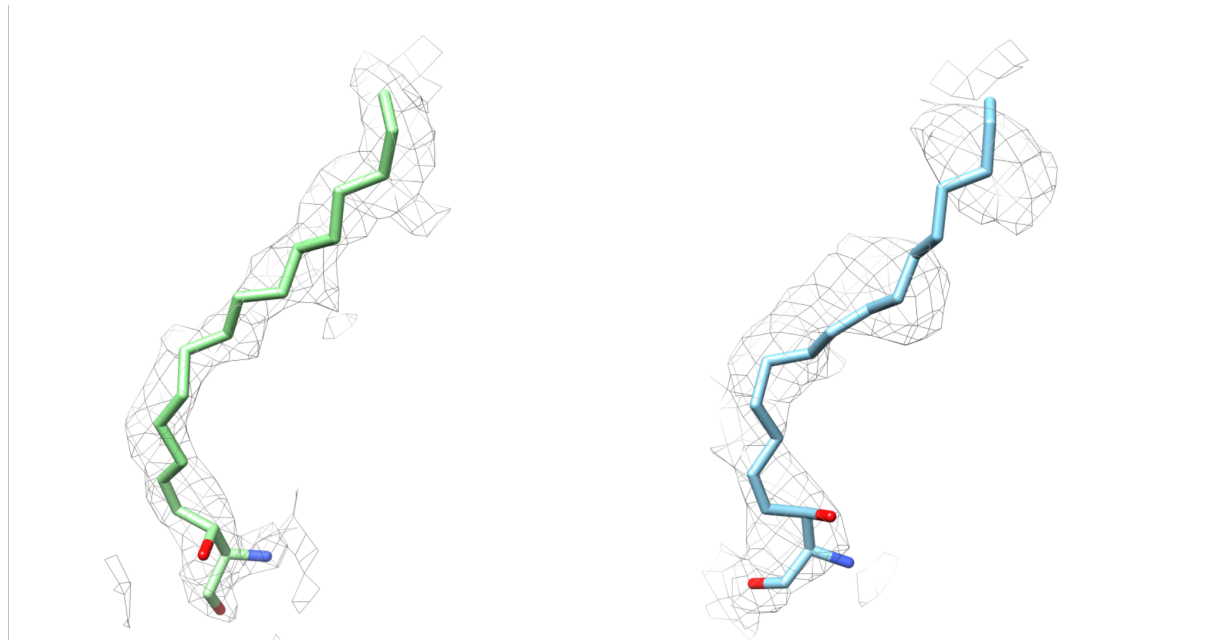
**Figure S3:** Linear regression to estimate antigenic conversion temperature of rsVLPs between 40°C and 50°C.

**Figure S4:**



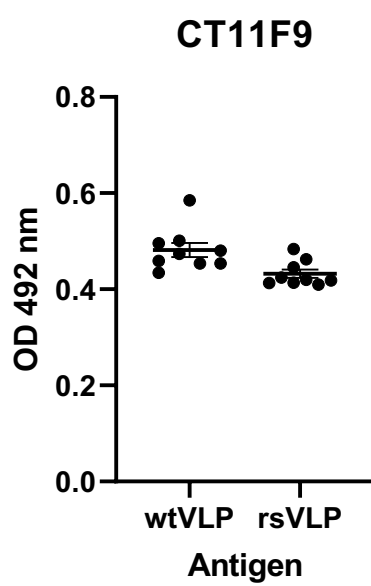
**Figure S4:** Negative stain TEM (using 2% UA) of samples of wtVLPs (left) and rsVLPs (right), scale bar = 200 nm.

**Figure S5:**



**Figure S5:** Density indicating occupancy of the pocket, present in the major population (left) and the minor population (right) shown at 2.5 rmsd.

**Figure S6:**



**Figure S6:** Reactivity of VLP (captured on ELISA plates) with CT11F9 antibody.

**Table S1:** specificity of the antibodies used to detect EVA71 antigenic states.

Antibody	Source	Specificity	Uses
CT11F9	mouse	NAg and HAg	ELISA
mAb 979	mouse	HAg	ELISA/western blot
16-2-2D scFv	human	NAg	ELISA

**Table S2:** Antigen composition of samples at a range of temperatures

$$\text{proportion HAg} = 2^{(OD_{4^{\circ}C} - OD_{55^{\circ}C})/\text{incline}}$$

Temperature (°C)	pHAg rsVLP	pNAg rsVLP	pHAg wtVLP	pNAg wtVLP
4	0.13	0.87	1.11	-0.11
30	0.11	0.89	0.80	0.20
35	0.10	0.90	0.69	0.31
37.5	0.11	0.89	0.84	0.16
40	0.14	0.86	0.97	0.03
42.5	0.31	0.69	1.16	-0.16
45	0.46	0.54	1.18	-0.18
47.5	0.86	0.14	1.32	-0.32
50	1.10	-0.10	1.54	-0.54
52.5	1.07	-0.07	1.17	-0.17
55	1.00	0.00	1.00	0.00
60	0.80	0.20	0.73	0.27

**Table S3:**

	<b>rsVLP</b>
<b>Microscope</b>	FEI Titan Krios
<b>Detector mode</b>	Counting
<b>Camera</b>	Falcon IV
<b>Voltage (kV)</b>	300
<b>Pixel size (Å)</b>	0.91
<b>Nominal magnification</b>	130,000×
<b>Exposure time (s)</b>	5
<b>Total dose (e<sup>-</sup>/Å<sup>2</sup>)</b>	31
<b>Number of fractions</b>	42
<b>Defocus range (μm)</b>	-0.8 to -2.9
<b>Number of micrographs</b>	20,419
<b>Acquisition software</b>	Thermo Scientific EPU

**Table S4:**

<b>Model</b>	<b><i>rsVLP</i></b>
<b>EMDB ID</b>	EMD-16450
<b>PDB ID</b>	PDB-8C6D
<b>CryoEM map processing</b>	
<i>Symmetry imposed</i>	11
<i>Number of particles contributing to map</i>	11,789
<i>Map resolution (FSC = 0.143) (Å)</i>	2.4
<i>Map resolution range at atomic coordinates (Å)</i>	2.4-2.8
<i>Map sharpening B factor (Å<sup>2</sup>)</i>	-133.6
<b>Residues modelled</b>	
	A 58-297
	B 13-45, 83-323
	C 1-242
<b>RMSD</b>	
<i>Bond lengths (Å)</i>	0.0096
<i>Bond angles (°)</i>	1.33
<b>Validation</b>	
<i>All-atom clashscore</i>	8.17
<i>MolProbity score</i>	2.21
<i>Rotamer outliers (%)</i>	3.89
<b>Ramachandran plot</b>	
<i>Favoured (%)</i>	95.45
<i>Allowed (%)</i>	4.55
<i>Outliers (%)</i>	0.00