## **Supplementary Information**

The structures of a naturally empty cowpea mosaic virus particle and its genomecontaining counterpart by cryo-electron microscopy

Emma L. Hesketh<sup>1†</sup>, Yulia Meshcheriakova<sup>2</sup>, Rebecca F. Thompson<sup>1</sup>, George P. Lomonossoff<sup>2</sup> & Neil A. Ranson<sup>1†</sup>.

<sup>&</sup>lt;sup>1</sup> Astbury Centre for Structural Molecular Biology, University of Leeds, Leeds, LS2 9JT. UK.

<sup>&</sup>lt;sup>2</sup> Dept. of Biological Chemistry, John Innes Centre, Norwich Research Park, Colney, Norwich NR4 7UH, UK

<sup>&</sup>lt;sup>†</sup> Co-corresponding authors: e.l.hesketh@leeds.ac.uk, n.a.ranson@leeds.ac.uk

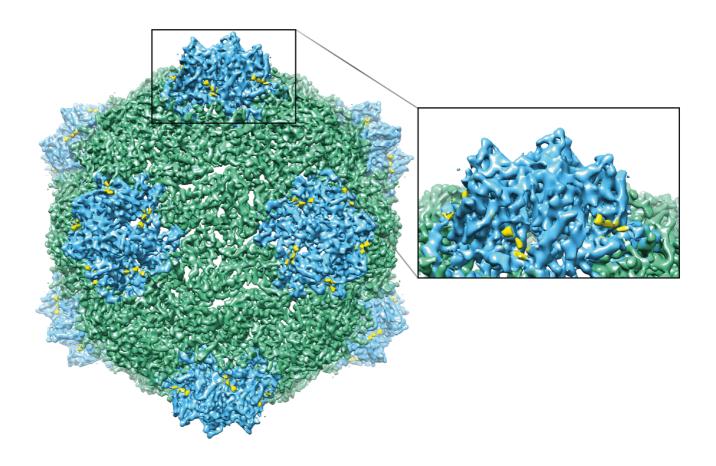


Figure S1. Cleaved 4.4 Å eVLP structure (EMD-8609).

This *cleaved* eVLP structure was refined from a small subset of data from the cryo-EM reconstruction of *uncleaved* eVLP reported previously (Hesketh et al., 2015). The Large Subunit is coloured green and the Small Subunit is coloured blue. The structure of CPMV-B (PDB:5a32) is fitted into this map. Residues 183 – 189 in the Small Subunit are coloured yellow. The map was reconstructed from 1,537 particles in Relion1.3. All microscopy and pre-processing was performed as described previously (Hesketh et al., 2015). The density map was sharpened using an empirically derived B-factor of -156.7 Å<sup>2</sup> to 4.4 Å resolution.

Hesketh, E. L. *et al.* Mechanisms of assembly and genome packaging in an RNA virus revealed by high-resolution cryo-EM. *Nature Communications* **6**, 10113 (2015).