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# Yeast Cells Allow High-Level Expression and Formation of Polyomavirus-Like Particles

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## Abstract

Polyomavirus-derived virus-like particles (VLPs) have been described as potential carriers for encapsidation of nucleic acids in gene therapy. Although VLPs can be generated in *E. coli* or insect cells, the yeast expression system should be advantageous as it is well established for the biotechnological generation of products for human use, especially because they are free of toxins hazardous for humans. We selected the yeast *Saccharomyces cerevisiae* for expression of the major capsid protein VP1 of a non-human polyomavirus, the hamster polyomavirus (HaPV). Two entire HaPV VP1- coding sequences, starting with the authentic and a second upstream ATG, respectively, were subcloned and expressed to high levels in *Saccharomyces cerevisiae*. The expressed VP1 assembled spontaneously into VLPs with a structure resembling that of the native HaPV capsid. Determination of the subcellular localization revealed a nuclear localization of some particles formed by the N-terminally extended VP1, whereas particles formed by the authentic VP1 were found mainly in the cytoplasmic compartment.

## 📄 About the article

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