

Accepted Manuscript

Title: Plant-made potyvirus-like particles used for log-increasing antibody sensing capacity

Authors: Ivonne González-Gamboa, Pilar Manrique, Flora Sánchez, Fernando Ponz



PII: S0168-1656(17)30295-X
DOI: <http://dx.doi.org/doi:10.1016/j.jbiotec.2017.06.014>
Reference: BIOTEC 7923

To appear in: *Journal of Biotechnology*

Received date: 14-2-2017
Revised date: 13-6-2017
Accepted date: 13-6-2017

Please cite this article as: González-Gamboa, Ivonne, Manrique, Pilar, Sánchez, Flora, Ponz, Fernando, Plant-made potyvirus-like particles used for log-increasing antibody sensing capacity. *Journal of Biotechnology* <http://dx.doi.org/10.1016/j.jbiotec.2017.06.014>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Plant-made potyvirus-like particles used for log-increasing antibody sensing capacity

Ivonne González-Gamboa, Pilar Manrique, Flora Sánchez, Fernando Ponz*

Centro de Biotecnología y Genómica de Plantas. Universidad Politécnica de Madrid - Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria (CBGP, UPM-INIA). Campus Montegancedo. Autopista M-40, km 38. Pozuelo de Alarcón. 28223 Madrid. Spain.

Current address of P. Manrique: Department of Microbiology and Immunology, Montana State University, Bozeman, MT, U.S.A.

*Corresponding author: F. Ponz; E-mail: fponz@inia.es

Keywords: viral nanoparticles, peptide presentation, thrombin receptor peptide, antibody sensing, virus-like particles

Abbreviations: VNP: viral nanoparticle; VLP: virus-like particle; CP: coat protein; TR: thrombin receptor; VEGFR-3: Vascular Endothelial Growth Factor 3; TuMV: *Turnip mosaic virus*.

Highlights

- The production of the first recombinant *Turnip mosaic virus* VLPs is reported.
- VLPs display a foreign peptide derived from the human thrombin receptor (TR).
- VLPs enhance peptide biological function (e.g. log-increasing antibody-sensing).
- These VLPs maintain assembly and integrity at 4, 15 and 28° C.
- These plant-made VLPs can be exploited for many nanobiotechnological applications like antibody sensing, imaging, immunization or drug delivery, among others.

ABSTRACT

Deployment of the elongated flexuous virions of *Turnip mosaic virus* (TuMV), a potyvirus, for peptide display on their external surface has been previously reported by us. Nonetheless, both in TuMV and other potyviruses some peptides hinder the ability of the virus to infect host plants. We found that a peptide derived from the human thrombin receptor (TR) inhibited TuMV infectivity. In an effort to get around this problem, TuMV virus-like particles (VLPs) were produced in plants by transient high-level expression of wild-type or recombinant coat protein (CP). Significant production of both recombinant and non-recombinant CP proteins was obtained from plant leaves.

Download English Version:

<https://daneshyari.com/en/article/4753648>

Download Persian Version:

<https://daneshyari.com/article/4753648>

[Daneshyari.com](https://daneshyari.com)