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A novel therapy for melanoma developed in mice: Transformation of melanoma into dendritic cells with *Listeria monocytogenes*

Carmen Alvarez-Dominguez[1], **Lucia Bronchalo-Vicente**[1,2], **Javier Freire**[2], **Jose Javier Gomez-Roman**[2] and **Sonsoles Yañez-Diaz**[2]
[1]Instituto de Investigacion Marques de Valdecilla, Spain
[2]Universitario Marqués de Valdecilla, Spain

Listeria monocytogenes is a gram-positive bacteria and human pathogen widely used in cancer immunotherapy because of its capacity to induce a specific cytotoxic T-cell response in tumours. This bacterial pathogen strongly induces innate and specific immunity with the potential to overcome tumour induced tolerance and weak immunogenicity. Here, we propose a *Listeria* based vaccination for melanoma based on its tropism for these tumour cells and its ability to transform *in vitro* and *in vivo* melanoma cells into matured and activated dendritic cells with competent microbicidal and antigen processing abilities. This *Listeria* based vaccination using low doses of the pathogen caused melanoma regression by apoptosis as well as bacterial clearance. Vaccination efficacy is LLO dependent and implies the reduction of LLO-specific $CD4^+$ T cell responses, strong stimulation of innate pro-inflammatory immune cells and a prevalence of LLO-specific $CD8^+$ T cells involved in tumour regression and *Listeria* elimination. These results support the use of low doses of pathogenic *Listeria* as safe melanoma therapeutic vaccines that do not require antibiotics for bacterial removal.

calvarez@humv.es

New tools in African Swine Fever Virus (ASFV) for vaccines development

Yolanda Revilla Novella
CSIC-UAM, Spain

ASFV is a large DNA virus that infects monocytes/macrophages of different species of suids, causing economically important and frequently fatal ASF. Our group has described that ASFV deploys strategies to evade the host's defense systems, such as inflammatory and immune responses and cell death. We also demonstrated that ASFV regulates and redistributes the cellular machinery while impairing the production of cellular proteins. In fact, eIF4E/ 4G, besides ribosomes and mitochondria have been found close to viral factories. ASFV enters to the host cells by macropinocytosis, inducing actin polarization as well as EGFR, PI3K-Akt, Pak1 and Rac1 activation. Currently we characterize cellular and viral factors involved in the binding and entry process, targets for vaccine development. Despite the efforts done during the last decades to obtain a preventive vaccine against ASFV infection, we are still far to succeed. For this purpose, two approaches are currently achieved 1) development of ASFV deletion mutants as candidate vaccine strains, and 2) the identification of protective antigens and development of DNA/ protein vaccines.

yrevilla@cbm.csic.es