



Rafael López

## PANIPAC

### PHOTOACTIVABLE NANOPARTICLES TO IMMUNOSTIMULATE THE TUMOUR MICROENVIRONMENT IN PANCREATIC CANCER


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There is a pressing medical need to develop innovative therapeutic approaches to improve the outcome and survival of pancreatic ductal adenocarcinoma (PDAC) patients. While the development of immunotherapies has represented a breakthrough that has revolutionized oncology treatments, they have proven non-efficacious in pancreatic tumours since they are considered non-immunogenic tumours with a tolerogenic/immunosuppressive tumour microenvironment. Thus, turning pancreatic tumours into immunogenic tumours could open up new treatment avenues, making them candidates for immunotherapies.

To meet this aim, PANIPAC proposes the development of photoactivable nanoemulsions made of bioactive sphingolipids, which via a dual mechanism of action should increase the immunogenicity of pancreatic tumours. This goal can be achieved by i) reverting the tolerogenic/immunosuppressive tumour microenvironment of pancreatic cancer by modulating the phenotype of tumor-associated immune cells, and ii) mediating the infiltration of T effector lymphocytes to reset the immunogenicity of pancreatic tumours, and make them candidates for the development of combinatory therapies with checkpoint inhibitors and/or other immune therapies such as bispecific antibodies. If successful, the project would have an enormous socio-economic impact worldwide.

