

EuroNanoMed

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Project coordinator:

Ken McCullough (CH)

Kenneth.Mccullough@ivi.admin.ch

Project partners:

Stanislas Pol (FR)

Carsten Laue (CH)

Albert Matthew (FR)

Thomas Joos (DE)

Carlos Alberto Guzman (DE)

Novel vaccines against Hepatitis C using nanotechnology (HCVAX)

Anti-viral treatments against hepatitis C virus (HCV) suffer from many disadvantages, and infections usually become chronic. While an efficient anti-HCV vaccine would help alleviate the problems of this disease, such a vaccine does not yet exist. This is the goal of the HCVAX consortium. The HCVAX vaccines are generated from innovative, biocompatible chitosan-based nanogels carrying RNA-replicon vaccines. The latter are modified swine fever virus genomes - incapable of infecting human cells as a biosafety measure - encoding HCV antigens, yet unable to generate infectious virus. For focussed vaccine delivery, the nanogel carrier is designed to target and introduce the RNA replicon cargo into dendritic cells, the pivotal cells for inducing efficient immune responses. Innovative adjuvants will also be screened for increasing the efficacy of these vaccines. Promising formulations will be identified through in vitro screening assays, and evaluated preclinically in vivo, to prioritize them for clinical development.