



## UNIVAX

Project reference: 601738

Funded under: [FP7-HEALTH](#)

# "A "Universal" Influenza Vaccine through Synthetic, Dendritic Cell-Targeted, Self-Replicating RNA Vaccines"

From 2013-10-01 to 2018-09-30, ongoing project

## Project details

<b>Total cost:</b> EUR 7 803 864,4	<b>Topic(s):</b> <ul style="list-style-type: none"><li>• <a href="#">HEALTH.2013.2.3.0-1 - Innovation in vaccines</a></li><li>• <a href="#">HEALTH.2013.1.3-4 - Development of alternative in vitro, analytical, immunochemical, and other test methods for quality control of vaccines</a></li></ul>
<b>EU contribution:</b> EUR 5 999 457	
<b>Coordinated in:</b> Switzerland	<b>Call for proposal:</b> FP7-HEALTH-2013-INNOVATION-1
	<b>Funding scheme:</b> CP-FP - Small or medium-scale focused research project

## Objective

"Although vaccination is the cornerstone of prophylaxis, current vaccines provide only moderate protection. Most employ inactivated or protein-based, including multimeric antigen, vaccines requiring annual updating. Their limited antigen loads provide limited capacity for inducing robust immune defences, without assurance that both humoral and cell mediated (CMI) responses, as well as durable immunity, will be induced. Replicating vaccines may provide several rounds of antigen production, increasing potential for humoral and CMI defence induction. Neither live, attenuated nor vector vaccines can be produced synthetically, being reliant on cell culture or egg production. They cannot be targeted to immune cells; interference from pre-existing immunity is also a risk.

Efficacious, synthetic vaccines would be the answer, as seen with self-replicating RNA replicon (RepRNA) technology - these replicate and translate without producing infectious progeny. RepRNA produced in vitro is combined with synthetic delivery vehicles targeting dendritic cell (DC) receptors -essential for efficient immune defences- with glycoconjugate ligands. The UniVax project promotes the first synergising of approaches with synthetic targeted delivery systems for RepRNA. The innovation integrates technologies of (i) RepRNA vaccines, (ii) lipoplexes (biodegradable lipid/adjuvant/RNA for cytosolic delivery), (iii) polyplexes (biodegradable, polysaccharide vehicles), (iv) glycoconjugates targeting DC receptors, (v) adjuvants with well-defined molecular targets and effector functions. This promotes efficacious mucosal and systemic responses, ensuring for the first time both humoral and CMI responses. Components developed in PANFLUVAC and Replixcel projects allow UniVax to create the first "Universal" Flu vaccine prototypes. This innovative approach creates the first synthetic vaccine of its kind, promoting consortium SMEs to a unique position of world leaders."

## Coordinator

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## Subjects

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