

## Gunnveig Grødeland

### Title: DNA vaccination with APC-targeted antigens for prevention of influenza pandemics

Abstract: Pandemic influenza represents a threat to society, and novel vaccine strategies are needed to counter an unexpected emergence. DNA vaccines can be rapidly manufactured, but it has been difficult to translate promising results from DNA vaccination in mice to larger animals and humans. Immunogenicity of DNA vaccination can be greatly increased by targeting of antigen to antigen presenting cells (APC). Further, we have demonstrated that careful selection of receptor targets on APC can polarize the induced immune responses to different types of immunity. As an example, targeting of influenza hemagglutinin (HA) towards MHC class II (MHCII) molecules was particularly efficient for induction of rapid, enhanced and long-lasting antigen-specific antibody titers in both mice and larger animals. By contrast, targeting of influenza antigens to chemokine receptors particularly raised cellular immunity. These observations formed the background for development of a novel vaccine strategy designed to quench an emerging pandemic threat. Further, it has paved the way for development of novel vaccine strategies that can raise broadly protective immune responses against different subtypes of influenza.

Affiliation: Oslo University Hospital and University of Oslo, Oslo, Norway