

Lorentz Center Workshop:

Connecting people to reverse vaccine hyporesponsiveness

Date: 12 - 16 February 2024

Venue: Lorentz Center@Oort, Niels Bohrweg 2, 2333 CA Leiden, the Netherlands

Scientific organisers:

- Abena Amoah - Leiden University Medical Center, Leiden, the Netherlands
- Julia Makinde - Imperial College London, London, United Kingdom
- Helder Nakaya - Hospital Israelita Albert Einstein, Sao Paulo, Brazil
- John Tsang - Yale University, New Haven, Connecticut, United States
- Maria Yazdanbakhsh - Leiden University Medical Center

About the workshop

Although the invention of vaccines has been one of the greatest public health interventions preventing millions of deaths from infectious diseases each year, the performance of some vaccines varies across populations and geographical areas. For example, marked lower responses (vaccine hyporesponsiveness) have been observed in low- and middle-income countries compared to high income countries or when comparing deprived rural areas versus urban areas within one country. Several reasons have been put forward to explain population-level differences in immune responses to vaccines, including genetic differences as well as environmental factors.

At the Parasitology Department at Leiden University Medical Center, the problem of vaccine hyporesponsiveness is being addressed through the creation of a knowledge hub (HypoVax Global) that aims to mobilize researchers from across the globe, working in diverse fields, to form a strong global network. This network will focus on understanding geographical variations in immune responses to vaccines and the hub will provide a platform for the sharing of expertise, methodologies, and data.

The Lorentz workshop aims to bring together researchers from diverse fields as well as partners from industry, funding organizations, technology transfer experts and policymakers to share knowledge, ideas and establish connections. The workshop also aims to highlight existing findings and to allow participants to brainstorm on solutions and interventions for tackling vaccine hyporesponsiveness. The workshop will provide an avenue for participants to work together to develop a vision on how to organize research, foster relationships with external partners and work with the knowledge hub to ensure better performing vaccines.

The Lorentz Center workshop is being organised by the HypoVax Global knowledge hub in conjunction with established researchers from different fields related to vaccinology.

Specific workshop aims

- Bring together researchers from diverse fields who are focused on understanding variation in vaccine responses across populations and geographical areas
- Highlight existing findings and discuss the way research on vaccine hyporesponsiveness can be shaped
- Provide the opportunity for early career scientists, especially women to share their research work
- Create connections between researchers and industry, funders, policymakers as well as technology transfer experts
- Brainstorm on solutions and interventions to chart a way forward on the best approaches to create a roadmap for tackling vaccine hyporesponsiveness (consensus paper)

Programme Overview

- **Day 1: Introduction to the knowledge hub scope**
Main theme: Introduction to the HypoVax Global knowledge hub and understanding the problem of vaccine hyporesponsiveness. The day will also cover an exploration of high dimensional population-level immunology as well as the use of computational biology analysis tools.
- **Day 2: Key aspects and considerations in vaccine development**
Main Theme: An overview of vaccine development from the perspective of industry, technology transfer experts, funders, and policy makers as well as presentations by academic researchers working on geographical differences in vaccine responses.
- **Day 3: Application of innovative tools and thinking**
Main Theme: Application of innovative computational biology tools to the analysis of high throughput immunological data and the application of innovative thinking to the generation of ideas.
- **Day 4: Brainstorming Solutions and Cementing Connections**
Main Theme: Interactive group breakout sessions to brainstorm together about charting the way forward in terms of research and vaccines development to reverse vaccine hyporesponsiveness.
- **Day 5: Wrapping up (Half Day)**
Main Theme: Collation of break-out discussion points and planning for consensus paper based on workshop. Wrapping up and closing of workshop.