

# GLYCOVAX FIFTH WORKSHOP

**"CLINICAL AND IMMUNOLOGICAL  
ASPECTS OF VACCINOLOGY"**

8<sup>th</sup>-12<sup>th</sup> October 2018  
Haunersche Kinderklinik - Munich, Germany

**PROCEEDINGS**

## INTRODUCTION

### GLYCOVAX - A Training Network for the Rational Design of the Next Generation of Well-Defined Glycoconjugate Vaccines

GLYCOVAX is a European Training Network (ETN) funded in the framework of H2020 Marie Skłodowska-Curie ITN programme. The GLYCOVAX network aims at the education of promising young scientists who will learn how to rationally design well-defined and innovative glycoconjugate vaccines to improve current preventive therapies and tackle unmet medical needs. The project is based on a profound interaction between the academic and industrial sectors, involving 8 academic groups and 2 industrial partners. In this highly multidisciplinary environment 14 Early Stage Researchers (ESRs) are trained in the growing field of glycoscience and vaccinology, enriching their skills and combining different state-of-the-art methodologies for the rational design of innovative glycoconjugates.

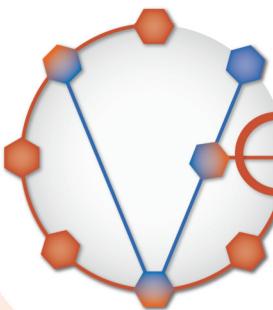
For more details and news, visit the website [www.glycovax.eu](http://www.glycovax.eu).

## WORKSHOPS

Six workshops will be organized during GLYCOVAX. In these workshops, the ESRs will attend seminars from internationally recognized experts in scientific areas related to the network objectives. The topics selected for the workshops aim at covering the state-of-the-art of disciplines strongly connected with the GLYCOVAX program. These forums are intended also to stimulate the establishment of new scientific collaborations inside and outside the network.

In particular, the fifth Workshop "Clinical and immunological aspects of vaccinology" has been organized by LMU, Dr. von Hauner Children's Hospital, Munich, Germany. Lectures dealt with:

- Multiresistant nosocomial pathogens
- Antimicrobial immunotherapy
- Vaccine immunology
- Public health aspects of vaccines
- Global and international vaccine programs



# GLYCOVAX TRAINING EVENT V

8<sup>th</sup>-12<sup>th</sup> October 2018 - Haunersche Kinderklinik - Munich, Germany

## DAY 1

Monday 8<sup>th</sup> October 2018

09.00 - 09.30 **Registration & Welcome**

09.30 - 10.30 **Introduction - History, success and failure of vaccines**

Johannes Hübner - Klinikum der Ludwig-Maximilian-Universität, Germany

10.30 - 11.00 Coffee break

11.00 - 11.30 **Basic concepts: Humoral and cellular immune response**

Fabian Hauck - Klinikum der Ludwig-Maximilian-Universität, Germany

11.30 - 12.00 **Childhood vaccine programs**

Anita Rack - Klinikum der Ludwig-Maximilian-Universität, Germany

12.00 - 12.30 **Vaccine strategies**

Martina Prelog - Universitäts-Kinderklinik Würzburg, Germany

12.30 - 13.00 **Eradication of infectious diseases through vaccines**

Tilmann Schober - Klinikum der Ludwig-Maximilian-Universität, Germany

13.00 - 14.00 Lunch

14.00 - 14.30 **Basic concepts: Immunodeficiency and infections**

Christoph Klein - Klinikum der Ludwig-Maximilian-Universität, Germany

14.30 - 15.00 **Cases and clinical problems**

Johannes Hübner - Klinikum der Ludwig-Maximilian-Universität, Germany

15.00 - 15.30 **Production of vaccines**

Roberto Adamo - GSK Vaccines, Italy

15.30 - 16.00 Coffee break

16.00 - 16.30 **Novel vaccines and unmet needs**

Johannes Hübner - Klinikum der Ludwig-Maximilian-Universität, Germany

16.30 - 17.00 **Controversies and public opinion**

Ulrich von Both - Klinikum der Ludwig-Maximilian-Universität, Germany

## INTRODUCTION - HISTORY, SUCCESS AND FAILURE OF VACCINES

**Johannes Hübner**

*Klinikum der Ludwig-Maximilian-Universität, Germany*

Vaccination and inoculation was used as early as 2000 years ago but only in the 18<sup>th</sup> and 19<sup>th</sup> century a scientific approach has been taken to prevent infection by stimulating the immune response. While initially using an empiric approach, new technologies have been introduced in recent years to exploit novel genetic and pathophysiological insights. A summary and overview will be given to explain the history of vaccination over time.

# HUMORAL AND CELLULAR IMMUNE RESPONSE

**Fabian Hauck**

*Klinikum der Ludwig-Maximilian-Universität, Germany*

Basic concepts of the humoral and cellular immune response will be given in this primer in immunology. Techniques to assess the cellular functions of B-cells and T-cells will be explained and diseases leading to a reduced immune response will be outlined.



## CHILDHOOD VACCINE PROGRAMS

Anita Rack

Klinikum der Ludwig-Maximilian-Universität, Germany

Vaccines in the first years of life are the basis of immunization strategies in all countries of the world. Using the example of the German Standing Committee for Vaccination (STIKO) it will be explained, which vaccines are given when and why. Differences between countries, and reasons for differences will be outlined.

# VACCINE STRATEGIES

**Martina Prelog**

Universitäts-Kinderklinik Würzburg, Germany

Vaccines can use various components of microorganisms and these different type of vaccines will be presented. Vaccines can be directed against toxins (proteins), bacterial surface antigens (polysaccharides, proteins), so-called "subunit vaccines" (against recombinantly expressed components), as well as attenuated live vaccines (BCG, measles) will be explained and examples will be given. Adjuvants as important component of many vaccines will be explained.



## ERADICATION OF INFECTIOUS DISEASES THROUGH VACCINES

**Tilmann Schober**

*Klinikum der Ludwig-Maximilian-Universität, Germany*

Eradication or elimination of infectious diseases have always been important parts of vaccine programs. Variola has been eliminated and polio is now close to elimination through efforts of the international health systems. New targets of the WHO have been defined and the talk will reflect the current status of these programs as well as the successful strategies that have been used in the past.

# CASES AND CLINICAL PROBLEMS

**Johannes Hübner**

*Klinikum der Ludwig-Maximilian-Universität, Germany*

Several clinical examples of vaccine-preventable diseases will be presented to give a better idea how these diseases present clinically and how they can be prevented.



## PRODUCTION OF VACCINES

**Roberto Adamo**

GSK Vaccines, Italy

The lack of vaccines against diseases such as tuberculosis or malaria and problems with assuring a constant supply (exemplified by vaccines shortages) highlights the complexity of vaccine development and the cost of production. Most vaccines are very complicated drugs and the problems in manufacturing, quality control steps involved and licensing will be explained.

## NOVEL VACCINES AND UNMET NEEDS

Johannes Hübner

*Klinikum der Ludwig-Maximilian-Universität, Germany*

Vaccines against a variety of diseases are desperately needed but the cost of development and other financial considerations hinder their introduction. Many infectious diseases occur in developing countries and since the financial returns in these countries are lower, pharmaceutical companies often are averse of the financial risks. On the other hand, new problems have arisen with multiresistant bacteria, and this is pursued by many of the pharmaceutical companies. The talk will give an overview about what would be needed mostly, and where the current development is headed.

## CONTROVERSIES AND PUBLIC OPINION

**Ulrich von Both**

*Klinikum der Ludwig-Maximilian-Universität, Germany*

Discussion about vaccination is often emotional and influenced by philosophical and religious beliefs. Pediatricians are regularly involved in arguments balancing the "common good" against the perceived risks for healthy children. The presentation will highlight some of the arguments of parents opposing vaccination of the children and will give advice on how to counter these arguments. Examples from false claims will be presented.

