The Neonatal Window of Opportunity, Early Priming for Life

December 5-7, 2016, Hannover, Germany

Herrenhausen Conference

Environmental, nutritional and microbial exposure modulates important biological processes in our body including the maturation of our immune system. Recent epidemiological and experimental studies indicate that exogenous factors when encountered early in life can result in life-long imprinting of immune and other processes and thereby predispose for disease resistance or susceptibility. This phenomenon is known as "window of opportunity" to describe the restricted time frame during early development during which the influence can take place. These findings thus shed light on a new interrelationship between early postnatal development and long-term health and represent a possible paradigm shift in the understanding of the etiology of human diseases with major influence on future epidemiological studies and impact on the clinical management and care of neonates and young children.

To obtain more insight in the interaction between the environment and the host during this early time in life a cooperative effort between researchers of different disciplines and an extended view on epidemiological links between early exposure and disease development is needed overcoming the traditional view on the etiology of human diseases. The Herrenhausen Conference "The neonatal window of opportunity, early priming for life" aims at providing a first step in this direction in order to initiate interactions and cooperative initiatives and booster future research on factors that influence the priming period early in life and determine the susceptibility to disease in adult individuals.

We invite all researchers and experts working in this field. There is no fee for the attendance, but registration is essential. www.volkswagenstiftung.de/windowofopportunity

PROGRAM (all academic titles have been omitted)

Monday, December 5th, 2016

12.00 p.m. *Registration and Coffee and Light Lunch*

2.00 p.m. Welcome addresses
Henrike Hartmann, Head of Funding, Volkswagen Foundation
Mathias Hornef, RWTH Aachen University, Germany
Harald Renz, University of Marburg, Germany

2.30 p.m. Session 1:
ORGAN DEVELOPMENT & ENVIRONMENTAL EXPOSURE OF THE NEONATE
Introduction and Chair: **Sina Bartfeld**, University of Würzburg, Germany

ESTABLISHMENT OF THE MICROBIOME IN EARLY INFANCY
John Penders, Maastricht University, Netherlands

GENETIC MECHANISM OF ALVEOLOGENESIS: LESSONS FROM IN VIVO MODELS
Xin Sun, University of Wisconsin-Madison, USA

4.00 p.m. Coffee Break

4.30 p.m. Session 2:
MATURATION OF THE IMMUNE SYSTEM
Introduction and Chair: **Immo Prinz**, Hannover Medical School, Germany

THE IMPACT OF THE MICROBIOME ON RESPIRATORY DISEASES
Benjamin Marsland, University Hospital of Lausanne, Switzerland

ENVIRONMENTAL SENSING BY INNATE LYMPHOID CELLS
Henrique Veiga-Fernandes, Faculdade de Medicina da Universidade de Lisboa, Portugal

6.00 p.m. **Lightning Talks 1**

6.30 p.m. *Aperitif and Poster Session*

7.00 p.m. *Welcome Dinner*

Tuesday, December 6th, 2016

9.00 a.m. Session 3:
MECHANISMS OF ADAPTATION TO POSTNATAL LIFE
Introduction and Chair: **Agnes Wold**, University of Gothenburg, Sweden

POSTNATAL MATERNAL-CHILD INTERACTION THROUGH BREAST MILK: A PHYSIOLOGICAL LINK WITH LONG TERM IMPACT ON IMMUNE FUNCTION
Valérie Verhasselt, University of Nice-Sophia Antipolis, France

TISSUE COMPARTMENTALIZATION OF IMMUNE RESPONSES IN EARLY LIFE
Donna Farber, Columbia University Medical Center, USA

10.30 a.m. *Coffee Break*

11.00 a.m. **Lightning Talks 2**

11.30 a.m. *Lunch*

1.00 p.m. Session 4:
FUNCTIONAL CONSEQUENCES OF NEONATAL EXPOSURE
Introduction and Chair: **Gesine Hansen**, Hannover Medical School, Germany

NEONATAL REGULATION OF NKT CELLS
Richard Blumberg, Harvard University, USA

MATERNAL AND EARLY LIFE MICROBIOTA AND EFFECTS ON THE NEONATAL IMMUNE SYSTEM
Kathy McCoy, University of Bern, Switzerland

2.30 p.m. **Lightning Talks 3**

3.00 p.m. *Coffee Break*

3.30 p.m. Session 5:
AGE-DEPENDENT SUSCEPTIBILITY TO INFECTION
Introduction and Chair: **Arnaud Marchant**, Université Libre de Bruxelles, Belgium

ONTOGENY OF THE MUCOSAL HOST RESPONSE TO ENTERIC INFECTION
Mathias Hornef, RWTH Aachen University, Germany

WHAT CAN SYSTEMS BIOLOGY TELL US ABOUT NEONATAL SEPSIS?
Peter Ghazal, The University of Edinburgh, Scotland

IMMUNITY TO ENTERIC PATHOGENS IN EARLY LIFE
Becky Adkins, University of Miami, USA

5.30 p.m. **Lightning Talks 4**

6.00 p.m. *Aperitif with Cultural Event and Dinner*

Wednesday, December 7th, 2016

9.00 a.m. Session 6:
AGE-DEPENDENT SUSCEPTIBILITY TO IMMUNE MEDIATED DISEASE
Introduction and Chair: **Mathias Hornef**, RWTH Aachen University, Germany

IMMUNE DEVELOPMENT IN THE PATHOGENESIS AND TREATMENT OF NEONATAL NECROTIZING ENTEROCOLITIS
David Hackam, Johns Hopkins Children's Center Baltimore, USA

INFANT SUSCEPTIBILITY DRIVES THE PROBLEM OF THE PNEUMOCOCCUS
Jeffrey Weiser, New York University School of Medicine, USA

EARLY LIFE MICROBIAL EXPOSURE SHAPES THE PRIMARY IMMUNOGLOBULIN REPERTOIRE
Duane Wesemann, Harvard University, Brigham and Women's Hospital, USA

11.00 a.m. *Coffee Break*

11.30 a.m. Session 7:
ENVIRONMENTAL EXPOSURE & DISEASE SUSCEPTIBILITY
Introduction and Chair: **Johan Garssen**, University of Utrecht, Netherlands

PROTECTIVE ENVIRONMENTS FOR THE DEVELOPMENT OF CHILDHOOD ASTHMA AND ALLERGIES
Erika von Mutius, Medical Center of the University of Munich, Germany

ALLERGO-PROTECTION THROUGH MICROBIAL CONTACT
Harald Renz, University of Marburg, Germany

1.00 p.m. Poster Awards and Closing Remarks
PERSPECTIVES OF FURTHER RESEARCH IN THE FIELD OF THE NEONATAL WINDOW OF OPPORTUNITY

Henrike Hartmann, Head of Funding, Volkswagen Foundation
Oliver Grewe, Volkswagen Foundation
Mathias Hornef, RWTH Aachen University, Germany
Harald Renz, University of Marburg, Germany

1.30 p.m. *Lunch*

3.00 p.m. End of Conference