

## GABRIEL Focus:

# The work of the Models Group

### GABRIEL MODELS GROUP (WP7)

This work package has the task of developing validated models both using cell systems as animal models that can rapidly test the environmental samples from the epidemiological studies of GABRIEL with a strong protective effect against the development of allergic asthma.

#### Samples

The structural characterization of active compounds will be conducted at Research Center Borstel under supervision of Professor Otto Holst. The group has a strong track record in characterization of microbial compounds using cutting edge technologies.

The microbiological assessment of the environmental samples will be undertaken at the University of Franche-Comté Besançon under supervision of Professor Piarroux. The laboratory has considerable experience in the typing of the environmental microflora and isolation and culture of microorganisms.

The participation of EMC microcollections in the model group, will allow access to synthetic molecules from bacteria that have been found in dust collections from farms and are thought to be protective against the development of asthma.



*From Leiden University Medical Centre, (Partner 13) from left, Franca Hartgers, Bart Everts, Yvonne Kruize, Maria Yazdanbakhsh and Alwin van der Ham*

#### Environmental factors and epithelial cells (WP7.1)

The group of Professor Ian Adcock at the National Heart and Lung Institute in London (Partner 1) will, in search of environmental factors with the ability to prevent the development of allergic inflammation, investigate the action of compounds on epithelial cell cultures and primary cells from patients with airway diseases.

#### Environmental factors and dendritic cells and T cells (WP7.2)

Candidate compounds (dust extracts and bacterial extracts) will be tested by the group of Professor Maria Yazdanbakhsh at Leiden University Medical Center on cell activating capacity using dendritic cells. Dendritic cells are known to induce different regulatory immune responses and can be used to test potential ability of candidate compounds to act pro allergic or anti allergic.

Early life events are important in setting the stage for the development of allergic disorders. The

group of Dr. Bianca Schaub, at University Children's Hospital at Ludwig Maximilians Universität München will study the immune responses of cord blood cells to stimulation with different dust and bacterial extracts. The identification of compounds that have strong regulatory effects on cord blood cells might be important for selection of those that might be included in early allergy prevention strategies.

### **Environmental factors and murine models (WP7.3)**

Dr. Marcus Peters in the group of Professor Albrecht Bufe at Bochum University, has developed an ovalbumin model of allergic asthma in the mouse. The group will test the available compounds in this model to determine the effect that a farming environment might have on the development of asthma. By using genetically different mice, it will be possible to understand in a mechanistic way how any identified compound suppresses allergic inflammation.

Animal models of house dust mite-induced allergic asthma used at the GRIAC institute [Groningen Research Institute for Asthma and COPD] target specifically the effect that (maternal) smoke exposure has on the development of asthma and its interaction with genes. Dr. Machteld Hylkema, Dr. Gerard Koppelman,

Prof. Antoon van Oosterhout and Prof. Dirkje Postma are collaborating on how asthma genes and tobacco smoke interact with dust and bacterial extracts to modify asthma outcome.



*Members of the Models group at Groningen University (Partner 20): back row from left, Machteld Hylkema, Dirkje Postma, Benoit Piavaux, Marike Boezen, front row, Anton van Oosterhout, Henk Koning, Anne Blacquiere, Gerard Koppelman*

---

## *Asthma documentary underway*



*Professors Bill Cookson and Erika von Mutius on location during the making of the documentary about asthma.*

*Filming of a new documentary about asthma took place in and near Munich in July, and will be shown on television and in over 1000 schools and colleges. Professor William Cookson, Dr Miriam Moffatt and Dr Markus Hilty travelled from the UK to participate in field studies on Bavarian farms, which will be featured in the film, along with members of the team from Munich University, led by Professor Erika von Mutius. The film, made by Visions Unlimited Media GmBH, and co-ordinated by Paul Pechan, is part of the EU EMRS (European Media Repository of Science) Project.*