A doctoral student position in the Faculty of Biology and Medicine, Respiratory Division of the University Hospital (CHUV) is available.

**THE INTERACTION BETWEEN MICROBIAL EXPOSURE AND NEONATAL PULMONARY IMMUNITY**

In both humans and mice, the neonatal immune system is immature and exhibits a propensity towards immune pathways associated with allergy, and an underdeveloped ability to mount immune responses against infections. Under normal circumstances the immune system matures over time and reaches a homeostasis where immune responsiveness and inflammation are in balance. However, the characteristics of this maturation process and the signals that drive it are poorly understood.

The intestinal and respiratory tracts are sterile at birth and undergo profound changes during the neonatal period when they are first exposed to environmental microbes. Although very little is currently known about the microbiota of the respiratory tract, the exact makeup of an individual’s intestinal microbiota appears to be determined by factors present during early childhood. These include the type of birth (natural versus caesarean), diet (formula versus breast-milk), early use of antibiotics and environmental conditions.

This PhD project will address the mechanisms through which the immune system matures during the perinatal period. Focus will be placed upon how environmental exposures (prenatally or postnatally) influence this developmental process, and what consequences these environments have upon susceptibility to respiratory diseases in adulthood. This translational project will involve cellular and molecular immunology utilizing mouse models and human samples.

Interested candidates should contact Prof. Ben Marsland – benjamin.marsland@chuv.ch

References:
