

## **BDRC Seminar Series**

**Frederic Lemaigre**

### **Developmental diseases of the bile ducts**

**14<sup>th</sup> December 1-2pm Microsoft Teams**

**Key words:** liver development, bile ducts, cholestatic disease, ciliopathy, polycystic liver

**Biosketch:** Frederic Lemaigre studied Medicine at the Université Catholique de Louvain (UCLouvain, Belgium) and graduated in 1986. He then started a career in research under supervision of Prof. Guy Rousseau, at the de Duve Institute, a Brussels-based research institution closely associated with the UCLouvain. The initial focus of the research was on hormonal and tissue-specific regulation of gene transcription.

After a stay (1991-1992) in the group of Prof. Michael Green at the University of Massachusetts Medical School (Worcester, MA., USA), to work on structure-function relationships in transcription factors, Frederic Lemaigre returned to the Duve Institute, to investigate how gene regulatory networks control cell differentiation.

Focusing on liver and pancreas, Frederic Lemaigre discovered a new class of transcription factors (Onecut factors: HNF6, OC2, OC3) and identified signaling pathways essential for differentiation and morphogenesis of the two organs. Frederic Lemaigre's team is now investigating how gene regulatory networks determine normal development of liver and pancreatic cells in the embryo, and how deregulation of such networks in adults perturbs cell differentiation and initiates tumorigenesis. The results of the research impact the field of developmental diseases and cancer, and tissue bioengineering.

Frederic Lemaigre currently leads a group at the de Duve Institute. He is also Professor of molecular biology at the Faculty of Medicine of the UCL, and member of the de Duve I

**Abstract:** Knowledge of the mechanisms that regulate hepatic cell differentiation and liver morphogenesis during the foetal period provides a basis for the understanding of human congenital diseases. Importantly, such knowledge has been gained from fundamental studies on animal models, and by analyses of human foetal and newborn livers affected with malformative disease. I will describe the main mechanisms driving liver development, and show how dysfunction of such mechanisms cause developmental diseases of the liver. The focus will be on developmental anomalies of the bile ducts, such as bile duct paucities, polycystic diseases and ciliopathies.