



# Research Training Group 1962

*Dynamic Interactions at Biological Membranes from Single Molecules to Tissue*

Speaker: Prof. Dr. Rainer Böckmann, Computational Biology

Invitation to  
RTG 1962 – Guest Talk

Tuesday, 19<sup>th</sup> of June 2018 at 05.00 p.m. (s.t.)

**Prof. Dr. Sébastien Mongrand**  
(University of Bordeaux)

## **“Role of microdomains in plant plasma membrane, lipids, proteins and biophysical features”**

Plant membranes are highly dynamic cellular compartments. They are made of three main families of lipids: glycerolipids, which often contain highly unsaturated fatty acids, sphingolipids and sterols. They also contain a large amount of proteins (ca 20-30% of protein in the plasma membrane). (Suda et al. 2011). The plasma membrane is continuous between plant cells across intercellular symplastic junctions called plasmodesmata (PD). Permanent re-organisation of membranes sustains the regulation of signalling and exchanges processes and occurs through the formation of specialised membrane domains of different scales (nano or macro domains) which display specific lipids and proteins content. Such sub-compartmentalisation of biological membranes has been described in cyanobacteria, animal and plants (Schaaf et al., 2009; Lopez and Kolter, 2010; Schmolzer et al, 2011; Cacas et al, 2012; Li et al, 2012.). The formation of membrane-domains is highly regulated and allows the clustering of specific activities within the membrane (endocytosis, polarisation, signalling, etc).

The precise molecular organization of these domains defines physiological activities of membranes and their study is therefore essential for understanding how cells regulate specialised functions at the membrane level. We were pioneers in the characterization of membrane domains at the PM in plants (Mongrand et al, 2004, recent review: Cacas et al, 2012.), which formation is essentially due to sterols and sphingolipids (Roche et al., 2008; Morel et al., 2006; Lefebvre et al, 2007).

In this talk, I will tackle all these questions on suitable model organisms. Our main objectives are to determine the role of these lipid classes, as well as specific proteins such as Remorin in the structure, fluidity, signal transduction, membrane homeostasis, and dynamics of various membrane functions.

**Guests are welcome!**

gez. Prof. Dr. R. Böckmann

→ Venue: Department Biology, Seminar Room Cell Biology (00.581),  
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