



## Stefano De Renzis

### Title:

Desensitisation of Notch signalling through dynamic adaptation in the nucleus

### Abstract:

Spatio-temporal regulation of signalling pathways is of fundamental importance for the development and homeostasis of multicellular organisms. Over the course of the past years the role of developmental signalling in tissue-specific gene expression programs and cell fate has been established in most model organisms. However, there remains little known about the regulatory principles whereby a signalling input is translated into a corresponding gene expression output *in vivo* in the real-time context of signalling dynamics. In my talk I will discuss how optogenetics is helping us dissecting input-output relationships linking Notch signalling and target gene expression during embryonic development.

### Biography:

*I have over 20 years research experience at the interface between cell and developmental biology. Since 2008, I run my own research group at the European Molecular Biology Laboratory in Heidelberg focusing on the interplay between membrane trafficking, actin dynamics and cell shape changes during tissue morphogenesis. Recently we have developed novel optogenetic strategies that allow us to control protein activity with high spatio-temporal precision using light. The implementation of these novel optogenetic tools is greatly facilitating our understanding of cell and developmental biological processes up to the point that we can guide and reconstruct morphogenesis. Together with Drs. Harald Janovjak (Monash University, Australia) and Jared Toettcher (Princeton University, USA) we run an EMBO practical course on optogenetics in order to facilitate the transfer of this powerful technique to other laboratories working at the interface between cell and developmental biology.*