SFB 680

MOLECULAR BASIS OF
EVOLUTIONARY INNOVATIONS

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"Signaling pathways in metazoans: insights from Homoscleromorpha sponge and a short-branched bilaterian, the annelid *Platynereis dumerilii*"

How did the diversity of forms and of body plans emerged among the animals? Surprisingly, very diverse metazoans, such as sponges and humans share major signaling pathways: Notch, Wnt, as well as the majority of transcription factors families. I am especially interested in understanding how those common genetic networks have evolved and how they have been recruited to generate this diversity of life.
Sponges are considered to be the sister group of eumetazoans at the basis of the metazoan tree. They are directly informative about the early evolution of animals. They are of special interest to investigate the origin and evolution of developmental processes, such as the emergence of neuro-sensory system as I will demonstrate.
Platynereis dumerilii is a well-established model that belongs to the group of Lophotrochozoa which forms with the Ecdysozoa, the protostomians. Comparisons between representatives of Lophotrochozoa, Ecdysozoa and Deuterostomia will help us to infer the developmental features of the common ancestor of bilaterians, Urbilateria. Wnt and Notch pathways have well-known functions in segmentation and nervous system patterning in other classical bilaterian models. I will show the involvement of Wnt for segment patterning in annelid while surprisingly the Notch pathway is not implicated in nervous system patterning but in chaetogenesis process.
By investigating the functions of major pathways at different metazoan scales, we will be able to further understand the emergence of the diversity of animals.

January 17th, 3:00pm

Biocenter, third floor seminar room (3.003)

Host: Kristen Panfilio

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