CDB SEMINAR

# Bernard de Massy

Institute of Human Genetics, CNRS, Univ Montpellier, Montpellier, France

Wednesday, April 25, 2018
14:00~15:00 A7F Seminar Room

## Breaking the genome during meiosis: an essential step for fertility

* This seminar is a part of the Epigenetics Seminar Series 2018-2019.

**Summary**
Sexual reproduction requires the halving of chromosome content leading to the formation of haploid gametes. This occurs through meiosis a specialized cellular program where proper chromosome segregation at the first meiotic division relies on the establishment of physical linkages between paternal and maternal chromosomes. Physical linkages result from reciprocal exchanges generated by homologous recombination which are thus essential for fertility and also important drivers of genetic diversity and genome evolution. Remarkably, meiotic homologous recombination events are initiated by the formation of hundreds DNA double strand breaks. Our group is aiming to understand how these DNA breaks are formed, regulated and properly repaired such as to ensure genome stability and proper meiotic and gamete differentiation. Our work over the last years, has led to the discovery of the function of several proteins involved in this process, PRDM9, TOPOVIBL and MEI4/REC114, allowing us to identify several major steps for the formation of DNA double strand breaks during meiosis in mammals. The molecular mechanisms and evolutionary implications will be discussed.

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