

Medical Mycology Research Center Monthly Seminar

October 25(Tue), 2016 15:30~17:00

Main conference room, Medical Mycology Research Center, Chiba University

“The *Drosophila* Immune System, an evolutionary perspective.”

Professor Jean-Marc Reichhart

The University of Strasbourg, CNRS, France

It has been known for long that insects are particularly resistant to microbial infections. In the early eighties, our laboratory in Strasbourg decided to address the reasons underlying this potent resistance. Using *Drosophila* as a model system, we observed a challenged-induced synthesis of several families of antimicrobial peptides that directly fight the incoming microbes.

Studies performed over many years based on a combination of biochemistry, analytical chemistry, molecular biology and genetics has led our laboratory to propose a model of antimicrobial defences extending from the recognition receptors of infectious non-self to the activation of signalling cascades which trigger the rapid transcription of immune response genes, and most notably of the potent antimicrobial peptides. The presentation will review our current understanding of *Drosophila* defences against bacteria and fungi.

Somewhat unexpectedly, it turned out that essential aspects of the *Drosophila* immune defences are conserved in mammals. This is the case of the Toll receptor, initially identified for its role in the dorso-ventral axis development of *Drosophila* by Nüsslein-Volhard and colleagues in the 80ies. But the presentation will highlight more recently discovered conserved functions and their direct medical relevance.

Finally, we will propose a phylogenetic model for the evolution of innate immunity in animals and its interaction with adaptive immunity - a defence mechanism absent from invertebrates.

Coordinator : Chihiro Sasakawa (Director, Medical Mycology Research Center, Chiba University)

Inquiry : Medical Mycology Research Center, Chiba University (E-mail: vab5903@office.chiba-u.jp)