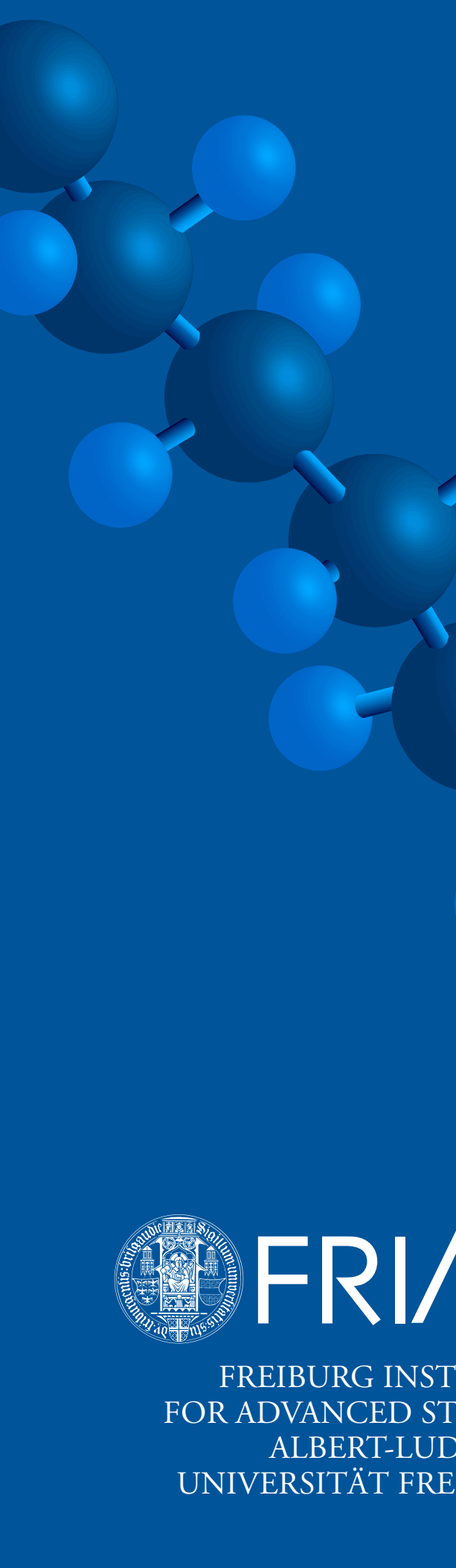
16TH HERMANN STAUDINGER LECTURE

NOBEL PRIZE LAUREATE

JULES HOFFMANN

CNRS, STRASBOURG

INNATE IMMUNITY: FROM FLIES TO HUMANS



Insects make up nearly 80% of all extant species on earth and present a formidable challenge as they put one third of humanity at continuous risk of often severe diseases, namely through their role as vectors of various types of pathogens. Insects have long been known to be resistant to various types of bacterial, fungal, viral and parasitic infections. The mechanisms underlying this resistance, other than the well known process of phagocytosis, have only been addressed relatively recently, and a general simplified picture of these defences will be presented. The fruitfly Drosophila is to be credited for much of the progress in the field. Genetic analysis has identified two signaling pathways which control the expression of antimicrobial peptides: the Toll pathway, which primarily controls the response to fungi and Gram-positive bacteria, and the IMD pathway which is efficient in fighting Gram-negative bacterial infections. Unexpectedly, the unravelling of the Drosophila antimicrobial defences has had an impact on understanding some essential facets of mammalian immunity. It has also led to a renewed interest in innate immunity, a long neglected field in the study of antimicrobial defences in general. The contribution of the Drosophila model to our present understanding of innate immunity, from sea anemones to humans, will be highlighted.

January 21th, 2014
5:15 pm
Anatomy Lecture Hall
Albertstraße 21, 79104 Freiburg

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