



Universität
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Research Project

EMBO Young Investigator Programme Award

Third-party funded project

Project title EMBO Young Investigator Programme Award

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Organisation / Research unit

Departement Biozentrum / Infection Biology (Broz)

Department

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Status Completed

The aim of our research is to understand how host cells recognize the presence of bacterial pathogens and how they eliminate this threat. We focus on the initial contact between host and pathogen, during which host defense mainly relies on the innate immune system. An important component of innate immunity are the so-called pattern recognition receptors (PRR), which detect pathogen-derived molecules known as pathogen-associated molecular patterns (PAMPs) or host-derived danger signals (DAMPs) in the extracellular or intracellular space of host cells. The best studied of the PRRs are the membrane-associated Toll-like receptors (TLRs) and the cytoplasmic RIG-I-like and NOD-like receptors (RLRs, NLRs). Upon binding of their ligands these receptors initiate a number of signaling pathways that activate anti-microbial mechanisms and initiate the recruitment of other immune cells by the secretion of inflammatory cytokines and chemokines. Altogether these responses serve to rapidly eliminate invading pathogens and to restore tissue homeostasis.

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