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Intrinsic, innate and adaptive immune responses against human *Cytomegalovirus* (HCMV): The mighty macrophages

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Human *Cytomegalovirus* (HCMV) is an enveloped double stranded DNA virus member of the Herpes virus family. HCMV has a very high seroprevalence among the human population and infects 50% to 100% of individuals depending on the socio-economic conditions. Although the course of infection is mainly asymptomatic in normally healthy individuals, HCMV infection in immunocompromised persons can lead to life-threatening complications, like gastrointestinal disease, hepatitis or pneumonia. Importantly, HCMV is also the most frequent viral cause of malformations in newborns, leading to deafness or mental retardation. HCMV can infect a broad spectrum of cells in the human body including central cells of the immune system such as monocytes, dendritic cells and macrophages (M ϕ). Despite their broad equipment of pathogen sensing and scavenging molecules, M ϕ is susceptible to HCMV infection and support viral persistence and dissemination in the human body. Since M ϕ is also a first line of defense against pathogens and key modulators of the innate and adaptive immune responses, these cells represent an essential switch between protection or viral persistence and pathogenesis. In this talk I will provide an overview about the manipulative strategies used by HCMV to escape the immune response explaining the viral proteins and mechanisms that impact of antigen presentation, cell migration and cytokine secretion. I will present several examples of the immunoevasive strategies used by HCMV to manipulate the immunological properties and functions of M ϕ . Moreover, by introducing newly developed experimental systems and approaches, I will provide the last data showing the cross-talk existing between M ϕ and essential cells of the innate immune system such as natural killer (NK) cells as well as cells of the adaptive immune system such as T lymphocytes.

Biography

Giada Frascaroli is conducting basic and clinical research in immunology and infectious diseases since 2004. Her projects seek to understand how immune cells control infectious agents with the aim to identify new diagnostically and therapeutically useful approaches. After studying Biology in Bologna (Italy, 1998) and completing a Specialization School in Pharmacological Research in Milan (Italy, 2001), she moved to Germany and obtained PhD in Biological Sciences (2004, joint program between Germany and Italy). Later on, she has completed the Medical Residency Program in Microbiology and Virology at the Medical School of Bologna (2008) and attended a Professional Management-Program für Führungskräfte (Speyer, 2010).

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