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Special Issue on

Role of Innate Immune Cells in HCMV Infection: Mechanisms Involved in Antiviral Responses and Impact on Adaptive Immunity

CALL FOR PAPERS

Human cytomegalovirus (HCMV) is a common β-herpesvirus, infecting a large part of the world population and remaining latent lifelong, thus probably coevolved with human beings. Although asymptomatic in healthy individuals, CMV infection can have very severe consequences in immunocompromised individuals.

Control of HCMV infection involves both the innate and the adaptive immune system. A first defense is provided by NK cells that are capable of circumventing some of the multiple immune evasion mechanisms exerted by HCMV. As a consequence of this initial interaction, NK cells can be profoundly reshaped in phenotype and function in some individuals. In a well-characterized model of murine (M) CMV infection, NK cells elicit a specific response to MCMV antigens, expand, and persist in time, displaying higher effector properties after rechallenge. These data have led to the concept that NK cells may develop memory-like properties at least in response to certain pathogens. In line with mouse data, it has been recently suggested that also human NK cells might acquire adaptive properties in response to HCMV infection. On the other hand the γδT cell compartment is remodeled in some HCMV healthy carriers as well, where the expansion of a $V\delta2^-$ T cell subset is likely involved in the elimination of infected cells.

During the host-HCMV interplay, innate lymphocytes may also interact with HCMV-infected immune cells such as monocytes/macrophages and dendritic cells and might also shape subsequent adaptive responses. The complexity of these interactions involved in HCMV immunity leaves open issues on the mechanisms by which innate immune cells actually contribute to control infection.

On the other hand, the emergence of HCMV-specific T cells has been largely documented and T-cell based adoptive immunotherapies have already been used to confer protection in given settings such as after HSCT. Finally, the interplay between anti-HCMV-specific antibodies, adaptive-like NK, and $V\delta2^-$ T cells constitutes a powerful, though poorly characterized, antiviral effector mechanism, proving the cooperation between adaptive and innate immunity.

It is necessary to integrate knowledge on the diverse immune effectors involved in the response to HCMV to achieve a complete understanding of this infection and to develop successful therapies and/or vaccines.

We, therefore, invite authors to submit original articles as well as reviews describing different aspects of innate immunity against HCMV infection, exploring interactions between the innate and the adaptive system and defining molecular mechanisms involved in anti-HCMV-responses in both normal and pathologic conditions.

Potential topics include, but are not limited to:

- Molecular mechanisms and receptors-ligands pairs involved in anti-HCMV responses
- Virologic aspects of HCMV infection
- Role of virus and host-encoded microRNAs during HCMV infection
- Impact of innate lymphocytes, primarily NK cells, and also γδT cells in anti-HCMV immune responses
- Mechanisms regulating acquisition of adaptive features by NK cells against HCMV
- Anti-HCMV responses bridging innate and adaptive immunity
- Impact of HCMV infection in immunocompromised subjects, for example, HSCT recipients, SOT recipients, and acquired/congenital immunodeficient patients
- Impact of adoptive cell-based therapies against HCMV infection in the transplantation setting
- Comparison between murine and human anti-CMV immunity

Authors can submit their manuscripts via the Manuscript Tracking System at http://mts.hindawi.com/submit/journals/jir/hcmv/.

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