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Mediators of Inflammation

Special Issue on

The Pleiotropic Nature of IL-2

CALL FOR PAPERS

Interleukin- (IL-) 2 was the first cytokine to be identified and characterized almost 50 years ago, but recent developments in our understanding of this intriguing molecule have led to resurgence in interest, making this a timely point for a topical review.

IL2 mediates its biological activity through binding to a high affinity receptor consisting of three subunits: IL2R α (CD25), IL2R β (CD122), and γ c (CD132). Both the distribution and downstream signaling of the IL-2 receptor have lately been highlighted as key determinants of IL-2 functions, while the functions of IL-2 itself have also emerged as being more diverse than previously thought.

Beyond the well-accepted roles of IL-2 in activating T cells upon TCR engagement and enhancing T cell memory, there is evidence that it also modulates T cell polarization to promote T regulatory cell (Treg) differentiation. The discovery that the survival and expansion of Tregs are highly dependent on IL-2 has crucially redefined IL-2 as a key cytokine for the maintenance of tolerance as well as immunity *in vivo*. It also appears that IL-2 mediates disparate processes depending on the amount of the cytokine released by the cell. Intriguingly, low doses of IL-2 maintain both central and peripheral tolerance, while high doses trigger effector T cell activation. These data have far-reaching impacts for IL-2 immunotherapy and could support substantial progress in this field.

Several innate cell populations have so far been revealed as important producers of IL-2, including dendritic cells (DCs) and mast cells. While there is compelling evidence that transcriptional and posttranscriptional regulation of IL-2 in innate cells is tightly controlled, the mechanisms are not yet fully understood.

This research topic will try to focus on current issues and studies related to IL-2 biology, with a particular emphasis on the recently described regulatory functions of IL-2 in both innate and adaptive immune responses. We welcome original and review papers to this special issue.

Potential topics include, but are not limited to:

- ▶ IL-2 and T cell differentiation and effector functions
- ▶ IL-2 and Treg polarization
- ▶ Innate sources of IL-2
- ▶ Regulatory role of DCs and IL-2 production
- ▶ IL-2 in autoimmunity, transplants, and infectious diseases
- ▶ IL-2 in clinical immunotherapy
- ▶ Transcriptional and posttranscriptional regulation of IL-2

Authors can submit their manuscripts via the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/mi/pnil/>.

Lead Guest Editor

Teresa Zelante, University of Perugia,
Perugia, Italy
teresa.zelante@unipg.it

Guest Editors

Jan Fric, Agency for Science,
Technology and Research, Singapore
jan_fric@immunol.astar.edu.sg

Paola R. Castagnoli, Agency for Science,
Technology and Research, Singapore
paola.castagnoli@gmail.com

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First Round of Reviews

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