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The Immunoproteasome in Health and Disease

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Message from the Guest Editors

Dear Colleagues,

The immunoproteasome is a cytokine-inducible variant of the standard proteasome in which the catalytically active subunits $\beta 1$, $\beta 2$, and $\beta 5$ are replaced by the subunits $\beta 1i$ (LMP2), $\beta 2i$ (MECL-1), and $\beta 5i$ (LMP7). With the help of immunoproteasome-selective inhibitors and gene-targeted mice, it could be shown that immunoproteasomes promote the differentiation of pro-inflammatory T helper cell subsets (Th1, Th17) and the production of pro-inflammatory cytokines (e.g., interferons, TNF, IL-6, IL-17, IL-23). These are involved in the development and persistence of autoimmune diseases. Excitingly, immunoproteasome inhibitors are presently tested as therapeutics against autoimmune diseases and cancer in humans. The almost exclusive expression of immunoproteasomes in virtually all types of immune cells poses questions about a potential special function of immunoproteasomes in leukocytes, which is currently being investigated. This Special Issue is exclusively dedicated to immunoproteasome research.

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Special Issue



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