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Sommario/riassunto

Long-lasting T cell immunity is delivered by an array of individual T lymphocytes expressing clonally distributed and highly specific antigen receptors recognizing an almost infinite number of antigens that might enter in contact with the host. Following antigen-specific priming in lymphnodes, naive CD4 and CD8 T lymphocytes proliferate generating clones of effector cells that migrate to peripheral tissues and deliver unique antigen-specific effector functions. Moreover, a proportion of these effector lymphocytes survive as memory T cells that can be rapidly mobilized upon new exposure to the same antigen, even years after their primary induction. Innate immune cells play crucial roles in the induction and maintenance of this efficient protection system. Following the seminal discovery of Steinman and Cohen in 1974 describing a rare cell type capable of initiating antigen-specific responses in lymphnodes, Dendritic Cells (DC) have taken up the stage for several decades as professional Antigen Presenting Cells (APC). Although DC possess all attributes to prime naive T lymphocytes, other immune cell subsets become crucial accessory cells during secondary and even primary activation. For instance, Monocytes (Mo) are rapidly recruited to inflammatory sites and have recently been recognized as capable of shaping T cell immunity, either directly through Ag presentation, or indirectly through the secretion of soluble factors. In addition, upon sensing of T cell-derived cytokines, Mo differentiate into functionally different APC types that further impact on the quality

and persistence of memory T cell responses in peripheral tissues. Other innate immune cells, including Myeloid Derived Suppressor Cells, Granulocytes and iNKT lymphocytes, are known to modulate T cell activation by interacting with and modifying the function of professional APC. Notably, innate immune cell determinants also account for the tissue-specific regulation of T cell immunity. Hence, the newly discovered family of Innate Lymphoid Cells, has been recognized to shape CD4+ T cell responses at mucosal surfaces. Although the actions of innate immune cells fulfills the need of initiating and maintaining protective T cell responses, the excessive presence or activity of individual determinants may be detrimental to the host, because it could promote tissue destruction as in autoimmunity and allergy, or conversely, prevent the induction of immune responses against malignant tissues, and even modulate the response to therapeutic agents. Thus, understanding how defined innate immune cell subsets control T cell immunity is of fundamental relevance to understand human health, and of practical relevance for preventing and curing human diseases. In this research topic, we intend to provide an excellent platform for the collection of manuscripts addressing in depth how diverse innate immune cell subsets impact on T cell responses through molecularly defined pathways and evaluating the rational translation of basic research into clinical applications.