Keystone Symposia: B cells at the Intersection of Innate and Adaptive Immunity
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The Keystone Symposia are well-known for their conferences on a wide-variety of subjects throughout the year. Usually organized in Northern America, this was the first B cell Keystone Symposia on European soil in the nice and beautiful Stockholm. B cells are generally known for their ability as antibody producers but the focus of the Keystone Symposia "B cells at the Intersection of Innate and Adaptive Immunity" was on non-antibody mediated effector functions and the role of B cells in the innate immune response.
A nice link between B cells and the innate immune response was presented by Mikael Karlsson. He showed that during an inflammasome-driven inflammation (via mice repeatedly injected with IL-18) neutrophils interact with NKT cells in the red pulp of the spleen via CD1d and invariant TCR recognition, respectively. This interaction leads to upregulation of FasL on the NKT cells and thereby these NKT cells regulate harmful autoreactive B cell responses.
Another interesting talk linking IgD antibodies with basophils and innate lymphoid cells (ILCs) was shown by Andrea Cerutti. Here, he showed that the enigmatic IgD antibodies could bind to basophils through CD44-binding protein galectin-9 resulting in the release of T_H2 cytokines by the basophils in concert with group 2 ILCs. This IgD-mediated activation of basophils interfered with the IgE-mediated degranulation of basophils normally occurring during allergy suggesting that IgD may enhance allergic protection.
During this meeting, several talks and posters discussed the various B cell subsets, mainly in mice. Among others, the B-1 cells which are the "natural" IgM-secreting cells and have protective effects against atherosclerosis and influenza infections. Regulatory B cells (Breg), discussed by Claudia Mauri, are also becoming an interesting B cell subset as these cells have been shown to be immunosuppressive mainly via production of IL-10 and IL-35. She nicely demonstrated that in healthy individuals plasmacytoid dendritic cells (pDCs) induce Breg differentiation but that in systemic lupus erythematosus patients the inflammatory environment disables pDCs from inducing Breg differentiation. Other topics that were discussed during this meeting were about B cell tolerance and B cell development, mucosal B cell responses and how commensal bacteria influence B cell activation, differentiation and development of local B cells. Of course, the meeting also included data on antibody effector functions mainly discussing antibody production against viruses such as HIV, influenza, Zika virus and dengue virus.
All of these topics also came by during the poster sessions during the evening and greatly allowed for more in-depth questions and data discussions.
I am very thankful for the Dutch Society for Immunology providing me with the opportunity to attend the Keystone Symposia "B cells at the Intersection of Innate and Adaptive Immunity". This conference allowed me to expand my knowledge on other aspects of B cell functions and its roles linked to the innate arm of the immune system. The acquired knowledge and the interactions made at the conference will be a boost for my future career in science.