Editorial

The multifaceted immune system

Volume 4 Issue 4 - 2016

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Received: December 01, 2016 | **Published:** December 05, 2016

Keywords: autoimmune diseases, immune system, inflammation, immunology, leucocytes, medicine, hematologic malignancies

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For a student, the field of immunology can be either terrific or fascinating, in either case for the same reasons: it is complex and has applications in almost every specialty of medicine. Immunology takes its foundations in embryology for the description of leucocytes' maturation. The deregulation of this process leads to infections, solid cancers, hematologic malignancies or autoimmune diseases.[1] In cancer, recent progresses in molecular biology and genetics have led to an unprecedented acceleration of the understanding of the mechanisms of leucocytes behavior toward malignant cells.[2] The observation of an increased incidence of lymphoma or leukemia in genetic disease like ataxia telangiectasia led to recombination activating gene (RAG) KO mice experiments.[3] These rodents presented an increased rate of cancers, confirming the importance of the immune system in tumor development.[4] Inflammation is one of the most important immune mean of defense of the organism against treats. William B. Cooley has reported its efficacy against cancers early, during his observation of sarcoma regression during erysipelas. The inflammation created by the streptococcus infection attracts and stimulates leucocytes in the tumor microenvironment, which ultimately leads to tumor elimination.[5,6] Recently, it has been demonstrated that malignant cells could build upon inflammation and detour it to their own profit, in reprogramming T helpers lymphocytes on an immunosuppressive mode by interacting with checkpoint proteins pathways like PD1/PD-L1.[7] Therefore tumor microenvironment elements have been more closely investigated especially pro-inflammatory cytokines. Among them, the interleukin 17 family members, that include IL-17A secreted by Th17 lymphocytes, have shown interesting properties though conflicting.[8] While some authors have reported anti-tumor qualities, other teams like ours have observed proliferation, invasion and chemotherapy resistance enhancing effects.[9-11] Knowledge in the fields of immunology is rapidly improving, particularly in oncology, but not only, and almost every medical specialty has benefited of these discoveries in the past 20 years. In their quest for progress, physicians and researchers must remember that the immune system is multifaceted, having positive effects and their opposite at the same time, balanced by complex mechanisms. That is why advances in immunology can only be reached with hard work, perseverance, and an open mind.

Acknowledgments

None.

Conflicts of Interest

None.

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