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Autoimmunity arising in the setting of chronic microbial states

Atopic dermatitis and psoriasis are considered autoimmune diseases. We have shown that atopic dermatitis is initiated by *staphylococci* that are normal flora on the skin. These organisms make biofilms when exposed to salt and water in the sweat ducts. The biofilms occlude the sweat ducts and activate the innate immune system. While attempting to kill the *staphylococci* encased in the biofilm, the innate immune system gives rise to the signs and symptoms of eczema. When the scratching is intense enough and the epidermis is breached, IL-31 released by T-cells generates even more pruritus and the disease is worsened. In psoriasis, the offending organism is *streptococcus*; it also makes biofilms but in addition to that process, it internalizes inside tonsillar cells. After living inside cells for up to a year, it emerges and recolonizes. Both the innate and adaptive immune systems are involved in the disease process. Alzheimer's disease, tertiary Lyme disease and arteriosclerosis are not currently considered autoimmune diseases. In the case of Alzheimer's and tertiary neuroborreliosis, the organisms initiating the disease are *spirochetes*. These microbes make biofilms against which the innate immune system reacts and gives rise to the slow destruction of neural tissue. When the adaptive immune system is activated (e.g., after a stroke), the untoward results are much more rapid and much more devastating. Thus the *spirochetes* create biofilms that cause activation of the immune system that then leads to tissue destruction; this is the very essence of autoimmunity. Atherosclerosis consists of cholesterol-filled plaques that create disease. In addition to cholesterol, these plaques contain biofilm. Many organisms from *chlamydia* to *T. denticola* have been thought to play a role; the innate immune system is again activated.

Biography

Herbert B Allen has received his MD degree from Johns Hopkins where he did his Internship. He has completed his Residency at the Naval Regional Medical Center in Philadelphia, PA, USA. He was in practice for 27 years, served as a Clinical Assistant and Associate Professor at the University of Pennsylvania, Hahnemann University and currently at Drexel University College of Medicine for over 20 years. He has been the Professor and Chair of Dermatology at Drexel for the past 14 years.

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