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Role of pro-inflammatory neuro peptides in the regulation of contact and atopic dermatitis

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Skin inflammatory diseases are regulated by a synchronized interaction of the immune and nervous systems that takes place during the process known as neuro inflammation. Contact hypersensitivity, (CHS) and atopic dermatitis (AD) are prototype recurrent skin inflammatory diseases initiated and sustained by type-1 and type-2 biased T cell responses, respectively. The activation and bias of CD4+ and CD8+ effectors/memory T cells is initiated by cutaneous immune stimulatory dendrite cells (DC). Studies from our laboratory and others, focused on skin immune-regulation, have demonstrated that stimulation and bias of cutaneous DCs depend on the presence of appropriate biasing pro inflammatory signalling during the interaction between the hapten/allergen and the DC. This inflammatory microenvironment is controlled, at least in part, by pro-inflammatory neuro peptides secreted locally in the skin by nerve terminals. In fact, delta-sensory fibers of the skin make direct contact with cutaneous DCs and mast cells, which are targets of the pro- inflammatory neuro peptides **Substance-P** (SP) and **Calcitonin Gene Related Peptide** (CGRP). SP favors cellular immunity by promoting the activation, proliferation and survival CD4+ T helper-1(Th1) and CD8+ T cytotoxic cells (Tc1), whereas CGRP promotes type 2 responses and humoral immunity. Here, I will discuss the role and mechanisms employed by these two cutaneous pro inflammatory neuro peptides regarding the regulation of skin chronic inflammatory diseases.

Biography

Dr. Adriana T Larregina, M.D.; Ph.D. and Pathologist completed her medical and doctorate degrees at Buenos Aires University, Argentina. Her PhD dissertation focused on the study of activation of human skin dendritic cells. After finalizing her PhD degree she completed a postdoctoral position at the Victoria University of Manchester in the field of genetic modification of cells that she intended to apply for her future scientific career analyzing the possibility to develop efficient genetic immunizations. To achieve this goal Dr Larregina accepted a position of Research Instructor at the Department of Dermatology of the University of Pittsburgh. She was soon promoted to Assistant Professor and Associate Professor (Tenure) of Dermatology, Immunology and the McGowan Institute for Regenerative Medicine at the School of Medicine of the University of Pittsburgh (PA).