Activation of sensory neurons through scratching or neuronal dysfunction can trigger release of neuropeptides such as CGRP, SP, and NMU. These neuropeptides can activate immune cells such as innate and adaptive lymphocytes and granulocytes that can lead or contribute to neurogenic inflammation. New findings describing the modulation of sensory neurons by cytokines such as IL-4 and IL-31 suggests that neurogenic inflammation may itself regulate itch. Abbreviations: CGRP, calcitonin gene-related peptide; IL, interleukin; NMU, neuromedin U; SP, substance P.