Interleukin-6, a Major Cytokine in the Central Nervous System

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Abstract:

Interleukin-6 (IL-6) is a cytokine originally identified almost 30 years ago as a B-cell differentiation factor, capable of inducing the maturation of B cells into antibody-producing cells. As with many other cytokines, it was soon realized that IL-6 was not a factor only involved in the immune response, but with many critical roles in major physiological systems including the nervous system. IL-6 is now known to participate in neurogenesis (influencing both neurons and glial cells), and in the response of mature neurons and glial cells in normal conditions and following a wide range of injury models. In many respects, IL-6 behaves in a neurotrophin-like fashion, and seemingly makes understandable why the cytokine family that it belongs to is known as neuropoietins. Its expression is affected in several of the main brain diseases, and animal models strongly suggest that IL-6 could have a role in the observed neuropathology and that therefore it is a clear target of strategic therapies.

Key Word:
Neuropoietin, Neuroinflammation, Neurogenesis, Gliogenesis, Alzheimer's disease, Multiple Sclerosis, Stroke, Trauma.

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