



BioDrugs, 2007; 21 (5):323-332

Autologous Conditioned Serum in the Treatment of Orthopedic Diseases: The Orthokine-Therapy.

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Abstract: The common strategies for the treatment of patients with orthopedic diseases do not address the underlying pathogenesis. Several biologically based, local therapies aiming to influence the cytokine imbalance are either in development or in the initial stages of clinical use. A method based on exposure of blood leukocytes to pyrogen-free surfaces (e.g. glass spheres) elicits an accumulation of anti-inflammatory cytokines, including interleukin-1 receptor antagonist, and several growth factors, including insulin-like growth factor-1, platelet-derived growth factor, and transforming growth factor-beta(1), in the liquid blood phase.

Based on these observations, a new therapy using cell-free, autologous conditioned serum (ACS) from the incubation of whole blood with glass spheres was developed. The injection of ACS into affected tissue(s) has shown clinical effectiveness and safety in animal models and studies, as well as in human clinical studies, for the treatment of osteoarthritis, lumbar stenosis, disc prolapse, and muscle injuries.