

Regenerating agents (RGTA): a new therapeutic approach.

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Abstract

RGTA, or ReGeneraTing Agents constitute a new class of medicinal substance that enhance both speed and quality of tissue healing and leading in some case to a real tissue regenerating process. RGTA consist of chemically engineered polymers adapted to interact with and protect against proteolytic degradation of cellular signaling proteins known as growth factors, cytokines, interleukins, colony stimulating factors, chemokines, neurotrophic factors etc. Indeed almost all these proteins of cellular communication are naturally stored in the extra cellular matrix interacting specifically with the heparan sulfates or HS. After tissue injury of any cause, cells die liberating glycanases and proteases inducing first HS degradation then liberation of the cytokines which in turn are susceptible to degradation as they are no longer protected. By replacing the natural HS, RGTA will protect cytokines from proteolyses as they are liberated from the matrix compartment matter in the wound. This spatio-temporal selective protection of cytokines results in a preservation of the natural endogenous signaling of a tissue and is reflected by spectacular tissue regeneration or by a very greatly improved tissue repair. These observations indicate that mammals have an unexpected ability to regenerate and that RGTA helps to reveal this capacity. The aim of OTR3 is to develop RGTA into a drug to treat specific tissue lesions.