

RGTA OTR 4120, a heparan sulfate proteoglycan mimetic, increases wound breaking strength and vasodilatory capability in healing rat full-thickness excisional wounds.

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Abstract

ReGeneraTing Agents (RGTA), a family of polymers engineered to protect and stabilize heparin-binding growth factors, have been shown to promote tissue repair and regeneration. In this study, the effects of one of these polymers, RGTA OTR4120, on healing of full-thickness excisional wounds in rats were investigated. Two 1.5 cm diameter circular full-thickness excisional wounds were created on the dorsum of a rat. After creation of the wounds, RGTA OTR4120 was applied. The progress of healing was assessed quantitatively by evaluating the wound closure rate, vasodilatory capability, and wound breaking strength. The results showed a triple increase of the local vascular response to heat provocation in the RGTA OTR4120-treated wounds as compared with vehicle-treated wounds. On days 14 and 79 after surgery, the wounds treated with RGTA OTR4120 gained skin strength 12% and 48% of the unwounded skin, respectively, and displayed a significantly increased gain in skin strength when compared with control animals. These results raise the possibility of efficacy of RGTA OTR4120 in accelerating surgically cutaneous wound healing by enhancing the wound breaking strength and improving the microcirculation.