

Effect of the first epidermal growth factor motif of
coagulation factor 9 on fibroproliferative disease

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PURPOSE: Capsule contracture around implants is characterized by abnormal collagenous fiber growth and is classified as a fibroproliferative disease. We have found that the epidermal growth factor derived from coagulation factor 9 (EGF-F9) has an antifibrotic effect. The purpose of this study was to investigate the effect of preventive and therapeutic EGF-F9 injections on capsule formation.

METHODS: Two implants were inserted into the back of rats (n=8–10/group). The subcutaneous tissue overlying the implant was injected with EGF-F9 or phosphate-buffered saline 3X/week for 4 weeks, starting at the time of implantation in the preventive regimen and 4 weeks post-implantation in therapeutic regimen.

RESULTS: The EGF-F9 injections in the preventive regimen associated with significantly thinner mean thickness of the capsule (48.1 ± 12.8 versus 95.3 ± 47.8 μm). The EGF-F9 injections in the therapeutic regimen associated with slightly thinner capsule thickness (229.7 ± 68.8 versus 246.1 ± 64.4 μm).

CONCLUSIONS: Early EGF-F9 injections prevent fibroproliferative disease. However, EGF-F9 injections have limited therapeutic effects once the disease is established.