

## **EFFECT OF REGRANEX GEL CONCENTRATION OR POST APPLICATION CONTACT TIME ON THE HEALING RATE OF HEAD AND LATERAL LINE EROSIONS IN MARINE TROPICAL FISH**

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### **ABSTRACT**

Regranex gel<sup>R</sup> (Bercaplammin 0.01%, Johnson & Johnson) is recombinant human platelet derived growth factor (rhPDGF-BB) suspended in a non-sterile water soluble gel. Previous studies have shown that Regranex gel in combination with lesion debridement can be successfully used to stimulate the complete healing of head and lateral line erosions (HLE) in marine tropical fish.<sup>1</sup> The described protocols called for application of 100% Regranex gel for a period of three minutes once every seven days with lesion debridement on alternating weeks. This protocol requires an anesthetic delivery system and approximately twenty minutes per fish. Additionally, the cost of Regranex gel can be prohibitory at approximately fifty dollars US per gram. Development of a treatment protocol requiring less Regranex gel and a rapid application time would be beneficial to the clinical use of this medication in fish.

The effect of Regranex gel concentration was evaluated at 50% and 25% on two tropical marine fish with advanced HLE. The Regranex gel was diluted using 0.9% Sodium Chloride to a concentration of either 50% or 25% and applied to the lesions on the right side of the fish. Lesions on the left side of the fish were used as the control and were treated with 100% Regranex gel. Post-application contact time was five minutes for both treatment and control lesions. Treatment was repeated once a week until healing of either lesion was complete.

The effect of contact time post application for 100% Regranex gel was evaluated on three tropical marine fish with advanced HLE. Post application times of one minute, thirty seconds, and zero seconds were applied to the lesions on the right side of the fish. Lesions on the left side of the fish were used as the control and treated with 100% Regranex gel for a post application time of five minutes. Treatment was repeated once a week until healing of either lesion was complete.

Healing rates were subjectively evaluated by serial photography and compared between treatment and control lesions on the same fish. Similar healing rates were observed between control and treatment lesions on the same fish for all variables up to week five of treatment. These results suggests that minimal post application contact time or concentrations of Regranex gel greater than 25% have equal clinical efficacy in healing HLE as previously described protocols. This should facilitate clinical treatment by reducing time and equipment requirements or by reducing the cost of the treatment per fish. A treatment protocol trial using 25% Regranex in combination with no post application contact time is planned.

Interestingly, healing rates varied greatly between individual fish independent of the size of the lesion. This suggests that there are other intrinsic HLE factors which may influence the healing rate between individuals such as chronicity of the lesion, age, or species.

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## **LITERATURE CITED**

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