

THE USE OF IONTOPHORESIS WITH HYALURONIC ACID ASSOCIATED WITH GOLD NANOPARTICLES ACCELERATES WOUND HEALING IN RATS

Carolini Mendes¹, Rubya Zaccaron¹, LIVIA HERUNDINA DE VASCONCELOS¹, Ligia Venturini¹, Laura Casagrande Casagrande¹, Anadhelly Cristina de Lima², Lara de Oliveira², Thiago Antonio de Andrade², Anand Thirupathi³, Paulo Feuser¹, Ricardo Machado-de-Ávila⁴, and Paulo Cesar Silveira¹

¹Universidade do Extremo Sul Catarinense

²Fundação Hermínio Ometto - FHO

³Ningbo University

⁴Universidade do Extremo Sul Catarinense Unidade Academica de Ciencias da Saude

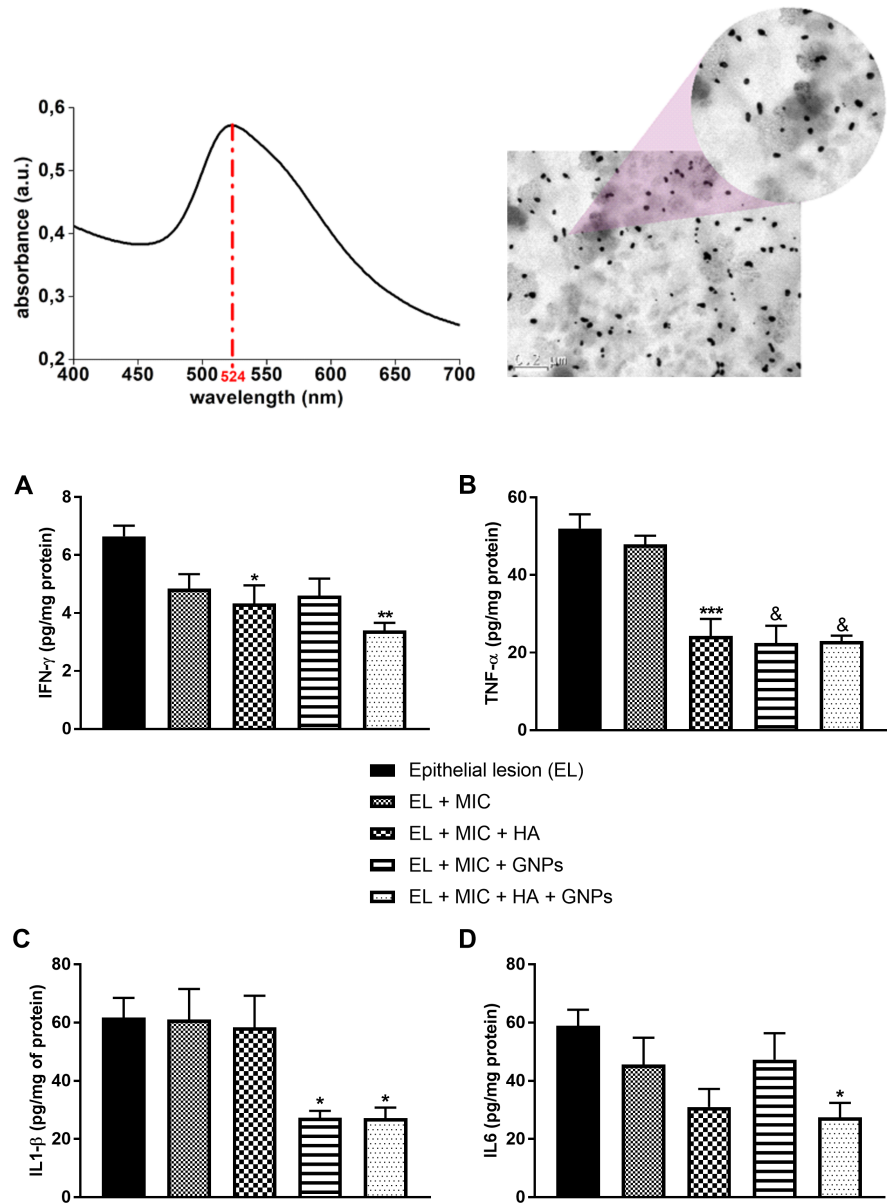
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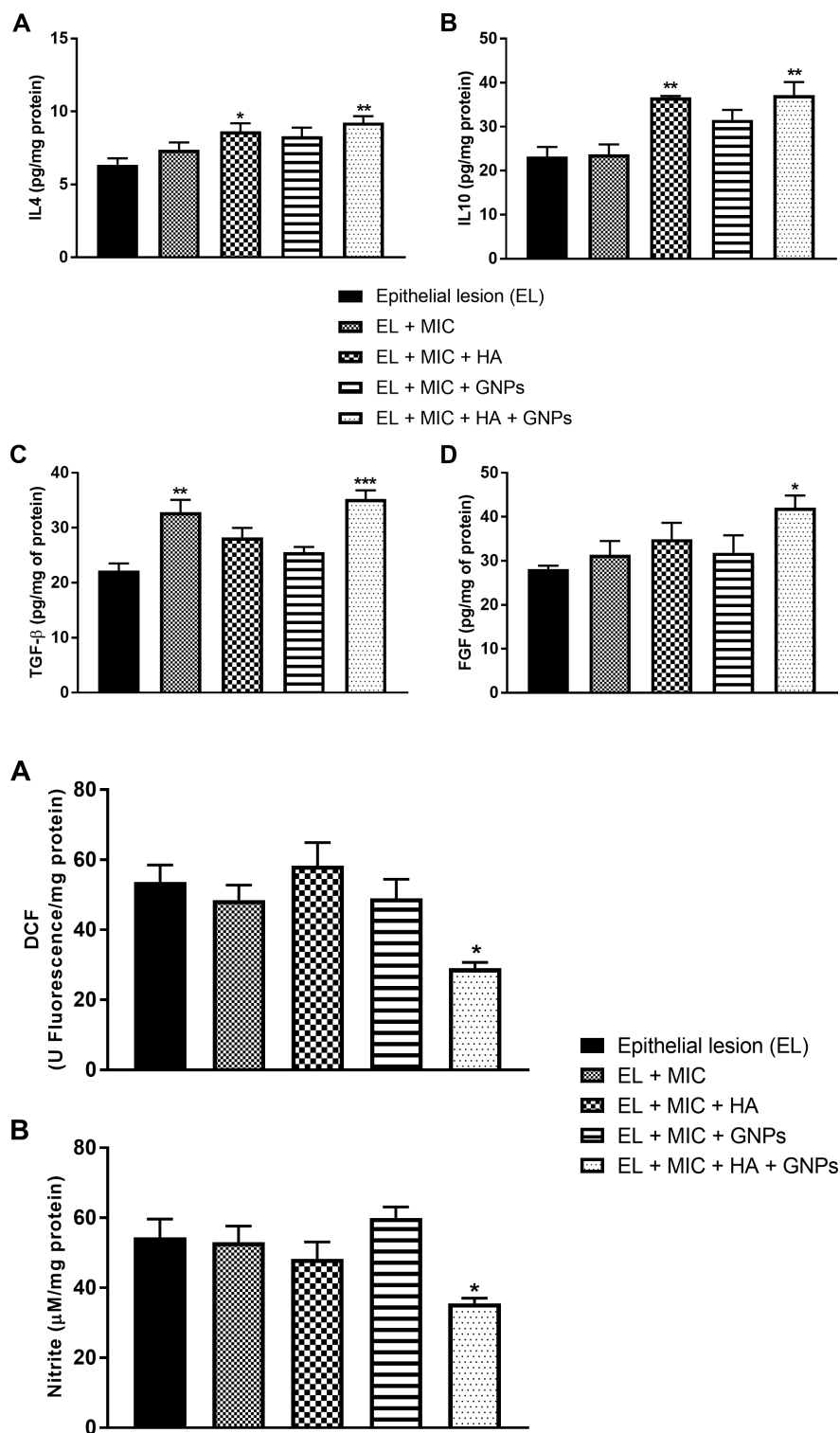
Abstract

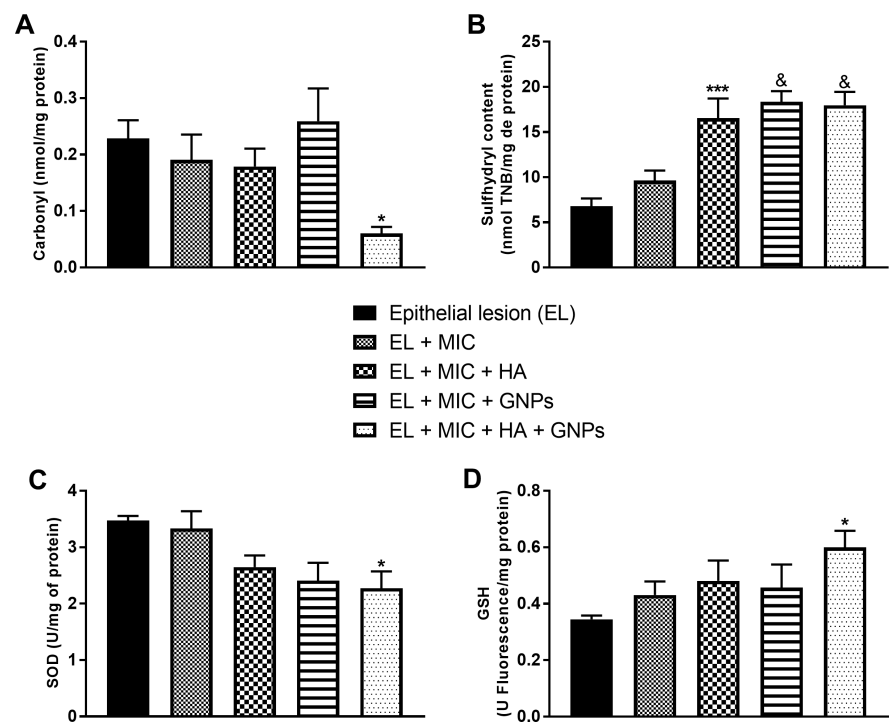
This study aimed to investigate the effects of iontophoresis with HA associated to GNPs solution in an epithelial lesion model. Fifty Wistar rats (n=10/group) were randomly assigned to the following groups: epithelial lesion (EL); (EL+MIC); (EL+MIC+HA); (EL+MIC+GNPs); (EL+MIC+HA-GNPs). The animals induced to an epithelial lesion and treatment started 24 hours after injury with microcurrents (300µA) containing gel with HA (0.9%) and/or GNPs (30mg/Kg) in the electrodes (1mL) for seven days. The animals were sacrificed 12 hours after the last treatment application. Results demonstrated a reduction in the levels of pro-inflammatory cytokines (IFN, IL-1β, TNFα, IL6) in the group in which the therapies were combined; an increase in the levels of anti-inflammatory cytokines (IL-4, IL-10) and growth factors (FGF, TGFβ) in EL+MIC+HA and EL+MIC+HA-GNPs groups. As for dichlorofluorescein (DCF) and nitrite levels, decreased in the combined therapy group when compared to the control group, as well as the oxidative damage (carbonyl and sulfhydryl). In antioxidant defense, there was an increase in glutathione (GSH) and a decrease in superoxide dismutase (SOD) in the combination therapy group. Histological analysis showed a reduction in the inflammatory infiltrate in groups treated with MIC and in the combination therapy group. An increase in contraction of the wound area was obtained in all treated groups when compared to the control group, proving that the proposed therapies are effective in the process of epithelial healing. The results of this study demonstrated that the associated therapies favor the tissue repair process more significantly compared to the isolated therapies.

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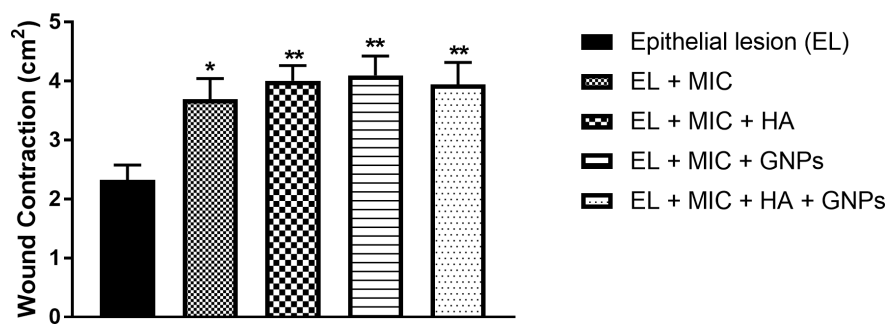






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