Effects of oral administration of linoleic acid (LA) on tissue repair in mice undergoing experimental diabetes.


Abstract
The aim about this project is identify and characterize the effects of linoleic acid

Key words: Inflammation, wound healing, fatty acid.

Introduction
The skin is the biggest barrier against external aggressions to the body so, any, damage to it must be quickly repaired. During this process, immune cells are activated and produce molecules called cytokines, which may be modulated by some nutrients, such as fatty acids. Previously, we demonstrated that linoleic acid (LA) modulated the inflammatory phase of wound healing in non-diabetic rats, increasing the initial production of pro-inflammatory cytokines. Uncontrolled hyperglycemia is a condition present in diabetes and it is related to chronicification of wounds, and can result in lower limb amputation, due to wound infection. Thus, it is crucial to investigate molecules that can improve the tissue repair in diabetic condition.

Results and Discussion
1. Methodology
Cytokines were determined by ELISA. Statistical analysis were performed using Student T test. Results were considered significant when p<0.05.

2. Results and Discussion
Glycemia was be increase on group submited to induce type-1 diabetes mellitus.

Figure 1. Glycemia was be elevated on groups submited to induce type-1 diabetes mellitus. Glycemia, initial and final, animals control (C), diabetic (D) and treated diabetic (DLA). Values presented as mean ± standart deviation of de average. (*) different compared to control.

The treatment with linoleic acid increase IL-1β, VEGF and reduce TNF-α.

Figure 2. The wound area on time line. Wound closure in control animals (C), diabetic (D), treated diabetic (DLA). Values expressed as mean ± standard deviation of the mean. (*) different compared to control.

The treatment with linoleic acid normalized closing wounds.

Figure 3. Cytokines production. Wound tissue of 7 days from diabetic (D) and treated diabetic (DLA) groups. Values expressed as mean ± standard deviation of the mean. (*) different compared to control.

Conclusions
As preliminary conclusions, animals subjected to oral supplementation of pure linoleic acid showed a better tissue repair compared to the diabetic group. These results may be associated with the modulation of inflammatory phase of healing process.

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