

Abstract

Wound healing of skin in mammals and its regeneration in Amphibians are crucial biomedicine topics in the last few decades. The most important aspect in humans is the scarring process and the effort to substitute it with the regeneration producing functional and differentiated tissues. To modulate the formation of scar it is necessary to compare both processes. The core animal model is axolotl (Caudata) where regeneration takes place during whole lifespan. On the other hand, in frogs (Anurans) this phenomenon is restricted up to metamorphosis. After metamorphosis, the immune system of Anurans is similar if compared to mammals. Similarly, the transition from early embryonic development in mammals, where the fetus was able to completely regenerate damaged tissue to an adult type of healing, goes hand-in-hand with the development of the immune system and structural differentiation of damaged tissue. Thus, the inflammatory cells and their regulation, the formation of ECM, which includes fibroblast proliferation, and the production of appropriate cytokines are key factors that distinguish the process of healing with and without scarring.