

Abstract

Galectins are proteins that bind β -galactosides through their Carbohydrate Recognition Domain (CRD). There have been 16 types discovered in mammals, with only 4 not found in humans. They are present in various cell types and tissues and are involved in numerous physiological functions, such as apoptosis and cell proliferation, as well as in several pathological conditions, including inflammatory skin diseases. For example, antibodies against galectin-3 cause skin inflammation in lupus erythematosus. During wound healing in a pig model experiment, an upregulation of galectin-1 in the dermis and its neo-expression in the epidermis were observed, along with an increased level of galectin-7. Galectin-1 plays a significant role especially in the formation of hypertrophic scars (HTS), which result from excessive collagen deposition during wound healing. HTS are erythematous and thick, causing cosmetic defects that could be addressed by modulating galectin activity during healing. Therefore, the aim of this bachelor thesis is to conduct a systematic literature review on the role of galectins in wound healing, considering both their positive and negative effects, with particular emphasis on the role of galectins and their ligands in the formation and regression of hypertrophic and keloid scars.