ABSTRACT

Charles University in Prague, Faculty of Pharmacy in Hradec Králové

Author: Adéla Pechancová

Title of bachelor´s thesis: Detection of nestin during development and injury with the use of *in vivo* model of skeletal muscle lesion

Supervisor: RNDr. Ivana Němečková, PhD.

Introduction and the aim of the study: Regeneration of tissues and organs is recently very actual topic. Regenerative medicine is coming to the foreground, it is a medical field focused on reparation of tissues. Intermediate filament nestin, which is considered to be a marker of stem cells and progenitor cells especially in nerve tissue, was also detected in immature elements of muscle tissue. The aim of this study was to prove expression of nestin during development and injury of skeletal muscle after injection of cardiotoxin and it´s following regeneration using immunohistochemical methods.

Methods: In the experimental part we were detecting nestin on paraffin embedded sections using mainly indirect immunohistochemical methods (LSAB, EnVision FLEX kit). The goal for the paraffin embedded section of mouse embryo was to capture the development of skeletal muscle. For the paraffin embedded section of leg muscle injured by cardiotoxin, the goal was to capture the amount of damage of the skeletal muscle and it´s following ability to regenerate during various time intervals.

Results and conclusion: Results of the study prove, that nestin is important marker of the correct embryonal development, because it occurs in tissues only during specific time interval. During regeneration after injury of the skeletal muscle caused by cardiotoxin, nestin was detected mainly in myoblasts and newly forming myotubes.

Key words: skeletal muscle, injury, nestin, immunohistochemistry, muscle development, regeneration, cardiotoxin