Abstract

Author: Petra Hajzlerová, DiS.

Title of thesis: Immunohistochemistry as a tool for cell phenotyping

Bachelor thesis

Charles University in Prague Faculty of Pharmacy in Hradec Králové

Study course: Medical laboratory technician

The aim of this study was to provide information about phenotypization of cells in tissues using immunohistochemical analysis. Several immunohistochemical techniques are used for cell phenotypization and to define their advantages.

Immunohistochemical technique is based on detection of the tissue/cell antigen using specific antibody. These specific antibodies are most often labeled by enzymes or fluorochromes, less frequently by radionuclides or dense particles. Immunofluorescence uses fluorochromes and enzymatic immunohistochemistry uses enzymes. Immunohistochemical methods can be divided into direct and indirect methods. The most commonly used methods in laboratory practice are indirect methods, especially those based on the interaction between avidin and biotin (LAB and ABC). Methods based on the interactions of enzyme anti-enzyme are used less frequently. The most popular in laboratory practice are methods based on soluble polymer, e.g. EnVision and EPOS.

Tyramides are very useful for signal amplification in immunohistochemistry.

These methods were compared in this work and their advantages and disadvantages in cell phenotypization were described and documented by figures.

Keywords: antigen, antibody, immunohistochemistry, indirect method, signal amplification