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Immunohistochemical Markers for Hepatic Myofibroblast Identification in Dogs with Chronic Liver Disease

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SUMMARY

Hepatic fibrosis is a common outcome of liver injury in dogs. Activated fibroblasts which develop myofibroblastic characteristics play an essential role in hepatic fibrogenesis. Fibrocontractive diseases are characterized by the presence of a cell called myofibroblast that is responsible for pathological tissue remodeling. Perisinusoidaly located hepatic stellate cells are considered the major source of myofibroblasts in the injured liver.

The purpose of this study was to investigate the immunohistochemical characteristics of hepatic myofibroblasts and hepatic stellate cells in chronic canine liver disease.

Liver samples from 15 dogs with chronic liver diseases were fixed in formalin and embedded in paraffin. Immunohistochemical exam using antibodies against vimentin (Dako, Clone V9), desmin (Dako, Clone D33), muscle specific actin (Dako, Clone HHF35), synaptophysin (Neo Markers) and glial fibrilar acidic protein (Abcam, ab 7260) was performed.

Desmin and muscle specific actin showed positive immunoreaction with hepatic stellate cells, activated myofibroblasts around portal spaces and fibrotic septa and smooth muscle cells of the tunica muscularis of arteries and the smooth muscle cells of the portal veins. Vimentin showed positive staining of both fibroblasts and myofibroblasts, smooth muscle cells of portal vasculature and cells from hepatic capsule. Hepatic stellate cells and myofibroblasts were generally negative for synaptophysin and glial fibrilar acidic protein.

From the tested antibodies the best marker for myofibroblast identification was muscle specific actin and desmin. Vimentin showed positive reaction for all mesenchymal cells and occasionally for hepatic stellate cells. Glial fibrilar acidic protein and synaptophysin antibodies showed positive immunoreactions with nerves located in portal spaces.

Keywords: liver, myofibroblast, hepatic stellate cell.

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