Actin, muscle

ANTISERUM: Dako (M0635). Mouse monoclonal antibody. Clone: HHF35. Isotype: IgG1k

IMMUNOGEN: SDS extracted protein fraction of human myocardium.

INTRODUCTION:
Actin, a highly conserved, ubiquitous cytoskeletal protein of muscle and nonmuscle cells, exist in three isotypes (alpha, beta, gamma) that differ by their amino acid sequences and isoelectric points. This monoclonal antibody does not react with alpha-actin of non-muscle (endothelial cells) sources. This antibody is specific for the alpha- and gamma-actin isotypes of skeletal, cardiac and smooth muscle.

REACTIVITY ACCORDING TO MANUFACTURER:
Normal tissues: Cytoplasmic staining of striated fibers of skeletal muscle, smooth muscle of arteries, veins and pericytes of smaller arteries, the tunica muscularis of the GI tract, the myometrium of the uterus, prostatic stroma, the capsule cells of several parenchymal organs (liver, kidney, lymph nodes, spleen); myoepithelial cells of mammary gland and eccrine sweat, bronchial and salivary glands. There is no staining of endothelial cells, lymphoid cells, macrophages, connective tissue, epithelium and neural cells.
Abnormal tissues: It stains neoplasms with muscle differentiation (leiomyomas, leiomyosarcomas and rhabdomyosarcomas). All types of rhabdomyosarcomas (embryonal, botryoid and alveolar) are positive for this marker. Glomus tumors also react. Non-muscle sarcomas, carcinomas, melanomas, and lymphomas are non-reactive.

STAINING PROCEDURE ACCORDING TO MANUFACTURER:
For formalin-fixed, paraffin embedded-tissues a dilution of 1/50 with LASB2-PO detection system. No pretreatment is required. Similar method for acetone-fixed, cryostat sections.
Dilution of the antibody in 80 mmol/L EDTA is recommended to reduce nonspecific background staining.

PRODUCT SPECIFIC LIMITATIONS:
EDTA added to the antibody reduces nonspecific staining and decreases the chances of false positive staining of neuroblastomas, retinoblastomas, and Ewing sarcomas (Tuskada et al., 1987; Schmidt et al., 1988).
Mild enzyme predigestion may improve the quality of the staining (Miettinen, 1988) although Dako does not recommend it.
On rare occasions spindle cells of the liver, kidney, lymph nodes, adrenal gland, and pancreas are positive (Rangdaeg and Truong, 1991).
Some pleomorphic undifferentiated sarcomas (malignant fibrous histiocytomas) are positive and localized only to the smooth muscle cells and pericytes of blood vessels.

WORKING DILUTION: 1/50. Pretreatment with steamer (citrate buffer, pH 6.0).
METHOD: LSAB2-PO, 30 min. RT

CELLS/TISSUES STAINED (canine tissues unless specified):
  Intestine: Diffuse staining of smooth muscle (intestinal wall, vessels) and myoepithelial cells in lamina propria.

REFERENCES: