New monoclonal antibody against Neurofibromin

- Monoclonal antibody binding to the C-terminus of neurofibromin
- Facilitate sarcoma research and diagnostics
- Western-Blot analysis
- Immunocytochemistry diagnostic

**The Technology**

A cDNA fragment encoding for the last 281 amino acids of neurofibromin (transcript variant 1) was cloned into pQCH6 vector. The fragment was expressed in *E. coli* and the fusion protein was purified using a hexahistidine tag. One C57Bl6/N and one BALB/c mice were immunized with 20 μg of the fusion protein and boosted on days 12, 16, 20, 28, 96, and 104. Polyethylene glycol fusion of lymph node cells from C57Bl6/N with mouse myeloma SP2/0 cells was performed on day 105. Immunoreaction was enhanced with Freund’s adjuvant. The monoclonal antibody was raised according to the method described by Kohler and Milstein.

**Background**

Malignant peripheral nerve sheath tumors (MPNST) derive from the Schwann cell or perineurial cell lineage and occur either sporadically or in association with the tumor syndrome neurofibromatosis type 1 (NF1). MPNST often pose a diagnostic challenge due to their frequent lack of pathognomonic morphological or immuno-histochemical features. Mutations in the NF1 tumor suppressor gene are found in all NF1-associated and many sporadic MPNST. The presence of NF1 mutation may have the potential to differentiate MPNST from several morphologically similar neoplasms; however, mutation detection is hampered by the size of the gene and the lack of mutational hot spots. Here we describe a newly developed monoclonal antibody binding to the C-terminus of neurofibromin (clone NFC) which was selected for optimal performance in routinely processed formalin-fixed and paraffin-embedded tissue.

**Commercial Opportunity**

- Western-Blot detection
- Immunocytochemistry formalin-fixed and paraffin-embedded tissue.

**Reference**

Neurofibromin specific antibody differentiates malignant peripheral nerve sheath tumors (MPNST) from other spindle cell neoplasms Reuss et al Acta Neuropathol (2014) 127:565–572

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Fig. 1 Mouse monoclonal NFC anti-neurofibromin antibody stains formalin-fixed and paraffin-embedded HcK293 cells (NF1+/+) (a) but not IN229 cells (NF1−/−) (b); original magnification ×100. In Western blots NFC produces a strong single band above 250 kDa in human NF1+/+ and mouse NF1+/− cells but not in −/− cells or NF1+/+ cells transfected with sirNA targeting neurofibromin (c)