

## Diagnostic and Prognostic Marker for Glioma Treatment (P-897)

### Keywords

- **Monoclonal Antibody against Neurofibromin**
- **Proof of Concept established with Biopsy Material**
- **Fast, reliable & ready to use**

### Background

Neurofibromatosis type 1 (NF-1) is among the most common inherited diseases affecting cells of the central and peripheral nervous systems. A region of the NF-1 gene is similar in sequence to the ras-GTPase activator protein (ras-GAP), and investigations have confirmed that the NF-1 gene product (now known as neurofibromin) stimulates ras-GTPase activity *in vitro* and *in vivo*. Neurofibromin modulates the ability of ras proteins to regulate cellular proliferation and/or differentiation, suggesting a possible role in normal development.

Neurofibromatosis type 1 (NF1) is a hereditary condition commonly associated with multiple café-au-lait spots on the skin. Café-au-lait spots are light brown in color, like the color of “coffee with milk.” About 10% to 25% of the general population has café-au-lait spots; NF1 is suspected when a person has six or more. People with NF1 also tend to develop varying numbers of neurofibromas (benign [noncancerous] tumors of the covering of the nerves). Neurofibromas are often seen as raised bumps on the skin and can occur anywhere on the body. While these skin changes do not have serious medical consequences, they can affect a person’s appearance. Plexiform neurofibromas (which form under the skin or deeper in the body) are also benign tumors. However, these can grow quite large and can cause significant medical problems, and can affect the structure of nearby bone, skin, and muscle.

Other benign and cancerous tumors that can occur in people with NF1 include: Benign eye tumors (Lisch nodules growing on the iris of the eye) and cancerous (glioma growing in the optic nerve) eye tumors, Brain tumors, Adrenal gland tumors, Muscle tumors, Spinal cord tumors

Peripheral nerve sheath tumors. Some other features of NF1 include: High blood pressure, Learning disabilities (in about 50% of people with NF1), Childhood leukemia

Bone changes

Scoliosis (curvature of the spine)

Multiple features have been associated with NF1, but the overall cancer risk is low, less than 7% over a person’s lifetime. The number of features present and the severity of symptoms can vary among people with NF1, even within the same family. Sometimes NF1 is “segmental,” meaning that it affects only one portion of the body, such as one leg or one arm.

## The Technology

The inventors established a monoclonal antibody against neurofibromin 1.

Neurofibromin 1 (neurofibromatosis, von Recklinghausen disease, Watson disease) Mutations linked to neurofibromatosis type 1 led to the identification of NF1. NF1 encodes the protein neurofibromin, which appears to be a negative regulator of the ras signal transduction pathway. In addition to type 1 neurofibromatosis, mutations in NF1 can also lead to juvenile myelomonocytic leukemia. Alternatively spliced NF1 mRNA transcripts have been isolated, although their functional differences, if any, remain unclear. Mouse monoclonal antibody raised against a partial recombinant NF1. Synonyms: DKFZp686J1293, NFNS, VRNF, WSS.

## Development Stage

The antibody was manufactured by Gerhard Moldenhauer at DKFZ and is ready to use. Proof of concept of marker established with biology material.

## Advantages

The antibody allows the fast and reliable detection of tumor cells by immunohistochemistry (IHC) and Western Blot analysis.

## Applications and Commercial Opportunity

Antibody for research only use, but in addition also for diagnostic purpose.

## Inventors

Gerhard Moldenhauer of Deutsches Krebsforschungszentrum Heidelberg (DKFZ) and Klaus Scheffzek and Annabel Parret of European Molecular Biology Laboratory (EMBL) jointly conceived the antibody.

## Further Information

No other public information is currently available, but further information (speaking with the inventor) is available under a signed Confidential Disclosure Agreement (CDA).

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