

## Product Information

### Monoclonal Anti-Proliferating Cell Protein Ki-67

#### Clone PP-67

produced in mouse, ascites fluid

Catalog Number **P6834**

#### Product Description

Monoclonal Anti-Proliferating Cell Protein Ki-67 (mouse IgM isotype) is produced from the PP-67 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from an immunized mouse. A HeLa cell nuclear preparation was used as the immunogen. The isotype is determined by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Catalog Number ISO2.

Monoclonal Anti-Proliferating Cell Protein Ki-67 reacts with the Ki-67 nuclear antigen (345 and 395 kDa, and several lower molecular weight proteins) in immunoblotting. The product shows an immunohistochemical staining pattern similar to that obtained with other anti-Ki-67/MIB-1 reagents. It labels proliferating cells in frozen human tissue and in formalin-fixed, paraffin-embedded tissue. A microwave heating retrieval step is required for successful labeling of routinely formalin-fixed, paraffin-embedded human tissue.

Monoclonal Anti-Proliferating Cell Protein Ki-67 may be used for the detection and localization of Ki-67 protein using various immunochemical assays such as immunoblotting and immunohistochemistry.

The proliferative activity of a tumor or a tissue is determined by the number of cells in cycle and the time taken to complete the cell cycle. There is a strong correlation between the proliferation rate of tumor cells and the clinical outcome. A high proliferation rate is associated with a high degree of tumor aggressiveness.<sup>1-4</sup> Consequently, measurement of cell proliferation may provide useful information concerning tumor prognosis and can aid diagnosis, especially for low grade non-Hodgkin's lymphomas. Ki-67 antigen is the prototypic cell cycle related nuclear protein, expressed in proliferating cells in G<sub>1</sub>, S, G<sub>2</sub> and M, but not in G<sub>0</sub>. The Ki-67 antigen is a large basic protein

found in two forms with molecular weights of 345 and 395 kDa. Other nuclear proteins, which are related to Ki-67 antigen, i.e., they are recognized by anti-Ki-67 antibodies, have also been described. These proteins have molecular weights in the range of 40 and 100 kDa. The distribution of Ki-67 protein in normal tissues reflects their known cell kinetics. Thus, germinal center cells in tonsil, basal cells of epithelium and undifferentiated spermatogonia of the testis, but not liver, kidney, and brain cells, express Ki-67 antigen. Ki-67 antigen also appears in peripheral blood lymphocytes which have been stimulated to proliferate by phytohemagglutinin. It is lost from HL-60 cells, a promyelocytic cell line, after they have been induced to differentiate into resting macrophages by phorbol esters. However, uniform expression of Ki-67 antigen throughout cell cycle has been reported for other cell lines. The exact function of Ki-67 antigen is not known. Its increasing level and continuous expression throughout the cell cycle and its widespread evolutionary conservation in both neoplastic and normal tissues from many species besides man,<sup>5</sup> may indicate that the protein has an important role in the regulation of cell proliferation. However, this view is not supported by observations that some proliferating cell lines lack the Ki-67 antigen, i.e., it may not be essential for cell proliferation. Due to the nature of the Ki-67 antigen, assessment of its expression in normal, reactive and neoplastic tissues is important. Antibodies reacting specifically with the Ki-67 antigen,<sup>6</sup> are useful tools in the detection and localization of this proliferation marker, using various immunochemical techniques, such as immunohistochemistry,<sup>1-6</sup> immunoblotting,<sup>7</sup> ELISA<sup>8</sup> and flow cytometry.<sup>9</sup>

#### Reagent

Supplied as ascites fluid with 15 mM sodium azide as a preservative.

**Precautions and Disclaimer**

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

**Storage/Stability**

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

**Product Profile**

A minimum working dilution of 1:800 is determined by indirect immunoperoxidase labeling of microwave-treated formalin-fixed, paraffin-embedded sections of human tonsil.

**Note:** In order to obtain best results, it is recommended that each user determine the optimal working dilution for individual applications by titration assay.

**References**

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