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Product Information

Monoclonal Anti-Proliferating Cell Nuclear Antigen clone PC 10
produced in mouse, ascites fluid

Catalog Number **P8825**

Synonym: Anti-PCNA

Product Description

Monoclonal Anti-Proliferating Cell Nuclear Antigen (mouse IgG2a isotype) is derived from the PC 10 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from a BALB/c mouse immunized with PCNA-Protein A fusion protein.[1] The isotype is determined by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Catalog Number ISO2.

Monoclonal Anti-Proliferating Cell Nuclear Antigen (PCNA) recognizes the acidic non-histone auxiliary protein of DNA polymerase, PCNA (36 kDa), also known as polymerase delta accessory protein. The antibody may be used on frozen sections, methacarn and Bouin's solution-fixed, paraffin-embedded sections, cell suspensions and cell extracts in immunohistology, immunoblotting, immunoprecipitation, ELISA and flow cytometry.[1-8] Fixation duration can markedly affect the intensity of PCNA immunoreactivity, but delay in fixation does not affect immunoreactivity.[4] Enzymatic treatment destroys staining. Cross-reactivity has been observed in primates (human and monkey), rats,[9] mice,[10] insects and yeast.[1] Specific staining is observed in proliferating cell nuclei, particularly in germinal centers, in a wide range of normal and malignant tissues.[1-8]

Monoclonal Anti-Proliferating Cell Nuclear Antigen may be used for the localization of PCNA using various immunochemical assays including ELISA, immunoblotting, immunohistology, immunoprecipitation and flow cytometry.

Proliferating cell nuclear antigen (PCNA, 36 kDa), also known as cyclin, is an auxiliary protein of DNA polymerase δ that is essential for DNA replication during S-phase. The protein is present in nucleoplasm of continually cycling cells throughout the cell cycle.[1-8] PCNA begins to accumulate during the G1 phase of the cell cycle, is most abundant during the S phase, and declines during the G2/M phase. The predominant distribution of PCNA appears to change with the stage of the cell cycle. In early S phase, PCNA has a very granular distribution and is absent from the nucleoli, while at the late S phase, prominent presence in the nucleoli is evident. PCNA is a conserved protein as evidenced by the amino acid sequence homology between mammalian PCNAs.[1] Experiments using anti-sense oligonucleotides and micro-injection of antibodies strongly suggest that PCNA is essential for cellular DNA synthesis. It is required for leading strand synthesis in the SV40 system where it probably acts as an auxiliary protein for polymerase δ, coordinating leading and lagging strand synthesis, and rendering the polymerase more processive. In many normal tissues, PCNA-positive cells are limited to the proliferative compartment. In many tumors, the proportion of PCNA-positive cells exceeds that expected for the proportion of proliferating cells[4] and apparently normal epithelium adjacent to tumors in breast tissue and pancreas has been shown to overexpress PCNA. It has been postulated that this increased expression of PCNA in tumors is due to growth factors that upregulate the production of this protein. Measurements of cell turnover and proliferation are employed in a wide variety of clinical and experimental investigations of cell and tissue kinetics. In clinical medicine, such studies performed in combination with other complementary assessments are providing important information that enables finer discrimination in tumor progressiveness diagnosis. Determination of the steady-state or growth phase of tumors contributes an influential diagnostic tool for the design of appropriate therapeutic treatment.[8] Several studies have demonstrated correlations between measurements of PCNA immunoreactivity and known prognostic variables in a range of malignant neoplasms.[4] PCNA immunohistology is a potentially valuable tool for defining proliferative activity in diagnostic pathology, because in contrast to staining with most of the antibodies reacting with Ki-67, it can be performed on formalin-fixed and processed tissues and is independent of exogenous tracer molecules such as tritiated thymidine or bromodeoxyuridine.[6]

Reagents

The product is provided as ascites fluid with 15 mM sodium azide.

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
For continuous use, store at 2 °C to 8 °C for up to one month. For extended storage, the solution may be frozen 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
Immunohistochemistry: a minimum working dilution of 1:3,000 is determined by indirect immunoperoxidase labeling of formalin-fixed, paraffin-embedded sections of human tonsil.

Immunoblotting: a minimum working dilution of 1:3,000 is determined using HS-68 -human foreskin- cell extract

Note: In order to obtain best results in different techniques or preparations, it is recommended that each individual user determine their optimal working dilutions by titration assay.

References

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