



## Product Information

### IMMUNOFILE

Monoclonal Anti Protein Kinase C $\beta_2$   
Mouse Ascites Fluid  
Clone PK-B26

**Product Number P 2584**

### TECHNICAL BULLETIN

#### Product Description

Monoclonal Anti Protein Kinase C $\beta_2$  (mouse IgG<sub>1</sub> isotype) is derived from the PK-B26 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mice immunized with a synthetic peptide (Cys)-Ser-Phe-Val-Asn-Ser-Glu-Phe-Leu-Lys-Pro-Glu-Val-Lys-Ser, corresponding to the C-terminal variable (V5) region (amino acids 660-673) of PKC $\beta_2$ , conjugated to maleimido activated KLH (mKLH) as carrier protein. The isotype is determined using Sigma ImmunoType Kit (Product Code ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Product Code ISO-2). The product is provided as ascites fluid with 0.1% sodium azide as a preservative.

Protein kinase C (PKC, 77-90 kDa), is a family of homologous serine-threonine protein kinases, which are key regulatory enzymes in signal transduction, cellular regulation, tumor promotion and oncogenesis.<sup>1</sup> PKC is a calcium-dependent and phospholipid-dependent enzyme that is activated *in vivo* by the lipid diacylglycerol, produced in response to a variety of hormones and growth factors.<sup>1-3</sup> PKC consists of a single polypeptide chain, containing four conserved regions and five variable regions. Sequence information defined a putative domain structure for the enzyme which can be divided into an amino-terminal regulator and a carboxy-terminal catalytic domain joined by a hinge region.

Proteolysis of purified native PKC by trypsin yields two major fragments, representing the regulatory and the kinase domains of the enzyme, due to cleavage in a proposed hinge region between residue 292 and residue 317.<sup>4</sup> There is evidence that *in vivo*, agonist-induced generation of a catalytic fragment of the enzyme may occur as well.<sup>1</sup> The PKC family of isoenzymes can be subdivided into two major classes; conventional (c) isoforms ( $\alpha$ ,  $\beta_1$ ,  $\beta_2$  and  $\gamma$ ), which are Ca<sup>2+</sup> and phospholipid-dependent kinases, and novel (n) isoforms ( $\delta$ ,  $\epsilon$ ,  $\zeta$ ,  $\eta$  and  $\theta$ ) that are Ca<sup>2+</sup>-independent, phospholipid-stimulated kinases.<sup>5</sup> PKC is widely distributed in all tissues and cells. The majority of cells coexpress multiple PKC isoforms, indicating a specific function for each isoform in the cell. PKC $\beta_1$  and PKC $\beta_2$  isoforms are encoded by the same gene but diverge at the C-terminal (V5) region as a result of differential mRNA splicing. The PKC $\beta_1/\beta_2$  isoenzymes appear to be widely expressed, in the brain, lung, liver, spleen, thymus, skeletal muscle and skin but not in kidney, rat and mouse fibroblasts.<sup>6</sup> PKC $\beta_2$  is also reported to be expressed in a wider variety of tissues and cell lines and in higher levels than PKC $\beta_1$ .<sup>6</sup> Antibodies that react specifically with PKC isoenzymes are useful for the study of the differential tissue expression, intracellular and subcellular distribution, of these isoenzymes. Furthermore, they also allow the detection and localization of PKC in normal and malignant tissues. The monoclonal nature of the product guarantees the continuous production of a constant titer of Anti Protein Kinase C $\beta_2$  antibody with the same specificity and chemical identity.

Monoclonal Anti Protein Kinase C $\beta_2$  is a homogenous population of antibody molecules which may be used for the localization of Protein Kinase C $\beta_2$  using various immunochemical assays such as ELISA, immunoblot and dot blot.

#### **Storage/Stability**

For continuous use, store at 0-5 °C. For extended storage freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in "frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

#### **Specificity**

Monoclonal Anti Protein Kinase C $\beta_2$  recognizes an epitope located within the amino acid residues 660-673 at the C-terminal variable (V5) region of PKC $\beta_2$ . It reacts with the 80 kDa polypeptide of PKC, applying the immunoblotting technique, using rat brain extract. The product reacts in dot-blot immunobinding and in ELISA with the PKC $\beta_2$  peptide conjugated to BSA with 1-ethyl-3-(3-dimethylaminopropyl)-carbodiimide (EDCI). The antibody shows no cross-reactivity with PKC peptides corresponding to C-terminal sequences from PKC $\beta_1$  (658-671) and PKC $\gamma$  (684-697) conjugated to BSA with EDCI.

#### **References**

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6. Hug, H., and Sarre, T.F., Biochem.J., **291**, 329-343 (1993).

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