3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

Anti-PKM2 (Isoform M1)
produced in rabbit, affinity isolated antibody

Product Number **SAB4200094**

Product Description

Anti-PKM2 (Isoform M1) is produced in rabbit using as the immunogen a synthetic peptide corresponding to a fragment of human PKM2, Isoform M1/PKM1 (GeneID: 5315), conjugated to KLH. The corresponding sequence is highly conserved (78% identity) in mouse PKM2 and not found in human PKM2 (Isoform M2). The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-PKM2 (Isoform M1) specifically recognizes human, mouse, and rat PKM2 (Isoform M1)/PKM1. The antibody can be used in several immunochemical techniques including immunoblotting (~60 kDa), immunoprecipitation, and immunohistochemistry. Detection of the PKM2 (Isoform M1)/PKM1 band by immunoblotting is specifically inhibited by the immunizing peptide.

Pyruvate kinase (PK) is a key enzyme in the glycolytic pathway. PKs exist in mammals as four isoforms, L, R, M1, and M2. The L and R isoforms are expressed in liver and red blood cells. The M1 isoform is expressed in most adult tissues, whereas the M2 isoform, an alternatively spliced variant of M1, is specifically expressed during embryonic development.[1,2] PKM1 is the major isoform expressed in skeletal, heart, and brain and progressively replaces the M2 isoform in these tissues during development. Tumor cells have been reported to exclusively overexpress the embryonic M2 isoform.[3,4] The tumor metabolome is characterized by high glycolytic turnover rate and tumor cells are able to proliferate under conditions of aerobic glycolysis, known as the Warburg effect. Knockdown of the M2 isoform in human cancer cell lines and its replacement by the M1 isoform has been shown to lead to reversal of the Warburg effect, and reduced ability to form tumors in mouse xenografts.[2] Phosphorylation of the M2 isoform at Tyr^{105} inhibits its activity and is common in human cancers, suggesting that Tyr^{105} is a critical metabolic switch in cancer cells that promotes tumorigenesis.[5]

Reagent

Solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody concentration: ~1.5 mg/mL

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Store at –20 °C. For continuous use, the product may be stored at 2–8 °C for up to one month. For extended use, freeze at –20 °C in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify by centrifugation. Discard working dilutions if not used within 12 hours.

Product Profile

Immunoblotting: a working antibody concentration of 1-2 μg/mL is recommended using mouse brain extract (S2 fraction).

Immunoprecipitation: a working antibody amount of 2-4 μg is recommended using rat brain extract (S2 fraction).

Immunohistochemistry: a working antibody concentration of 20-30 μg/mL is recommended using formalin-fixed paraffin embedded sections of human colon.

Immunocytochemistry (IFT): a working antibody concentration of 5-10 μg/mL is recommended using HeLa cells.

Note: In order to obtain best results in various techniques and preparations, it is recommended to determine optimal working dilutions by titration.

References

1. Takenaka, M., et al., *Eur. J. Biochem.*, **198**, 101-106 (1991).
2. Christofk, H.R., et al., *Nature*, **452**, 230-234 (2008).
3. Mazurek, S., et al., *Semin. Cancer Biol.*, **15**, 300-308 (2005).
4. Dombrauckas, J.D., et al., *Biochemistry*, **44**, 9417-9429 (2005).
5. Hitosugi, T., et al., *Sci. Signal.*, **2**, ra73 (2009).

VS,ER,KAA,PHC,MAM 07/19-1