

#### DESCRIPTION

<b>Species Reactivity</b>	Human
<b>Specificity</b>	Detects human Hexokinase 2 in direct ELISAs. Detects human Hexokinase 1 and human Hexokinase 2 in Western blots.
<b>Source</b>	Monoclonal Mouse IgG <sub>1</sub> Clone # 927312
<b>Purification</b>	Protein A or G purified
<b>Immunogen</b>	<i>E. coli</i> -derived recombinant human Hexokinase 2. Phe11-Arg917 Accession # P52789
<b>Conjugate</b>	Alexa Fluor Plus 555 Excitation Wavelength: 558 nm Emission Wavelength: 572 nm
<b>Formulation</b>	Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide.  *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

#### APPLICATIONS

**Please Note:** Optimal dilutions should be determined by each laboratory for each application. [General Protocols](#) are available in the Technical Information section on our website.

<b>Western Blot</b>	Optimal dilution of this antibody should be experimentally determined.
<b>Immunohistochemistry</b>	Optimal dilution of this antibody should be experimentally determined.

#### PREPARATION AND STORAGE

<b>Shipping</b>	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
<b>Stability &amp; Storage</b>	Protect from light. Do not freeze. 12 months from date of receipt, 2 to 8 °C as supplied

#### BACKGROUND

Hexokinases phosphorylate hexose to form hexose 6-phosphate, the first step in hexose metabolism (1). Phosphorylation of a hexose adds charge to molecule thereby making it difficult to transport out of a cell. The hexose is therefore retained for intracellular metabolic processes, such as glycolysis or glycogen synthesis. In most organisms, glucose is the most important substrate of hexokinases and glucose-6-phosphate is the most important product. There are four mammalian hexokinases (2). Hexokinase 1, 2 and 3 are referred to as high-affinity hexokinases because their Km for glucose is below 1 mM. Hexokinase 4 is specific for glucose and is also referred to as glucokinase (3). Hexokinase 2 (HK2), also known as muscle form hexokinase, localizes to the outer membrane of mitochondria and is present in adipose tissue, skeletal muscle, and heart (4). The amino acids corresponding to the mitochondrial binding domain (5) have been removed in the recombinant enzyme. Like Hexokinase 1 (HK1), HK2 contains two homologous halves that may have evolved from an ancestral hexokinase through gene duplication and tandem ligation (6). Unlike HK1, in HK2 both the C-terminal and N-terminal portions are catalytically active with the N-terminal half having higher activity than the C-terminal half (7). In HK2 both the N-terminal and C-terminal halves exhibit product inhibition. HK2 overexpression is required for tumor growth making HK2 an attractive oncotarget (4). The enzymatic activity of recombinant human HK2 is measured using a phosphatase-coupled method (8).

#### References:

1. Aleshin, A.E. *et al.* (1998) *Structure* **6**:39-50
2. Takeda, J. *et al.* (1993) *J. Biol. Chem.* **268**:15200.
3. Lange, A.J. *et al.* (1991) *Biochem. J.* **277**: 159.
4. Patra, K.C. *et al.* (2013) *Cancer Cell.* **24**:213.
5. Bianchi M *et al.* (1998) *Mol Cell Biochem* **189**:185.
6. Ureta, T. (1982) *Comp Biochem Physiol. B.* **71B**:549.
7. Ahn, K.J. *et al.* (2009) *BMB Rep.* **42**:350.
8. Wu, Z.L. (2011) *PLoS One* **6**:e23172.

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