

#### DESCRIPTION

<b>Species Reactivity</b>	Human
<b>Specificity</b>	Detects human Insulysin/IDE in direct ELISAs and Western blots.
<b>Source</b>	Monoclonal Mouse IgG <sub>1</sub> Clone # 334501
<b>Purification</b>	Protein A or G purified from hybridoma culture supernatant
<b>Immunogen</b>	<i>S. frugiperda</i> insect ovarian cell line Sf 21-derived recombinant human Insulysin/IDE Met42-Leu1019 Accession # P14735
<b>Conjugate</b>	Alexa Fluor 647 Excitation Wavelength: 650 nm Emission Wavelength: 668 nm
<b>Formulation</b>	Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide. See Certificate of Analysis for details.  *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.

	Recommended Concentration	Sample
<b>Intracellular Staining by Flow Cytometry</b>	0.25-1 µg/10 <sup>6</sup> cells	HeLa cells fixed with paraformaldehyde and permeabilized with saponin

#### 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>	<b>Protect from light. Do not freeze.</b> <ul style="list-style-type: none"> <li>● 12 months from date of receipt, 2 to 8 °C as supplied.</li> </ul>

#### BACKGROUND

Insulysin, or insulin-degrading enzyme (IDE), is a zinc metallopeptidase of the inverzincin family. IDE is primarily located in the cytosol, but has been detected as a secreted enzyme and associated with the plasma membrane as well (1). The enzyme is expressed in many tissues, with the highest levels in liver, kidney, brain, and testis (2). IDE hydrolyzes a variety of regulatory peptides, including insulin, glucagon, atrial natriuretic factor, and transforming growth factor- $\alpha$  *in vitro* (1). In addition, IDE has been shown to degrade the amyloid  $\beta$  (A $\beta$ ) peptide, which polymerizes into the plaques associated with Alzheimer's disease (3). Deficiencies in IDE activity may contribute to the pathogenesis of type 2 diabetes mellitus (DM2) and Alzheimer's disease. The IDE region of human chromosome 10q has been genetically linked to DM2 (4). When the IDE gene was specifically disrupted in mice, IDE -/- animals developed hyperinsulinemia and glucose intolerance, characteristics of DM2 (5). The IDE -/- mice were also shown to have a significant decrease in A $\beta$  degradation in the brain, resulting in increased cerebral accumulation of A $\beta$  peptide. This *in vivo* evidence is consistent with the hypotheses that IDE is important for the degradation of insulin in cells and for the clearance of A $\beta$  peptide in the brain.

#### References:

1. Affholter, J. A. *et al.* (1988) *Science* **242**:1415.
2. Duckworth, W.C. *et al.* (1998) *Endocr. Rev.* **19**:608.
3. Akiyama, H. *et al.* (1990) *Biochem. Biophys. Res. Commun.* **170**:1325.
4. Selkoe, D.J. (2001) *Neuron* **32**:177.
5. Ghosh, S. *et al.* (2000) *Am. J. Hum. Genet.* **67**:1174.
6. Farris, W. *et al.* (2003) *Proc. Natl. Acad. Sci. USA* **100**:4162.

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