# Recombinant Protein Technical Manual

## Recombinant Mouse Acetylcholinesterase/ACHE Protein (His Tag)(Active)

**RPES1346**

## Product Data:

**Product SKU:** RPES1346

**Size:** 10µg

**Species**: Mouse

**Expression host:** HEK293 Cells

**Uniprot:** NP_033729.1

## Protein Information:

| | |
|---|---|
| **Molecular Mass:** | 66.2 kDa |
| **AP Molecular Mass:** | 66.2 kDa |
| **Tag:** | C-His |
| **Bio-activity:** | Measured by its ability to cleave Acetylthiocholine. The specific activity is > 250 nmols/min/µg. |
| **Purity:** | > 97 % as determined by SDS-PAGE |
| **Endotoxin:** | < 1.0 EU per µg of the protein as determined by the LAL method. |
| **Storage:** | Lyophilized proteins are stable for up to 12 months when stored at -20 to -80°C. Reconstituted protein solution can be stored at 4-8℃ for 2-7 days. Aliquots of reconstituted samples are stable at < -20℃ for 3 months. |
| **Shipping:** | This product is provided as lyophilized powder which is shipped with ice packs. |
| **Formulation:** | Lyophilized from sterile PBS, pH 7.4 |
| **Reconstitution:** | Please refer to the printed manual for detailed information. |
| **Application:** | |
| **Synonyms:** | mE1a, mE1b, mE1c, mE1c-long, mE1d, mE1d', mE1e |

## Immunogen Information:

**Sequence:** Met 1-Leu 614

## Background:

Acetylcholinesterase, also known as ACHE, is an enzyme that degrades (through its hydrolytic activity) the neurotransmitter acetylcholine, producing choline and an acetate group. Acetylcholinesterase plays a crucial role in nerve impulse transmission at cholinergic synapses by rapid hydrolysis of the neurotransmitter acetylcholine (ACh). ACHE appears to be a potential therapeutic target at muscle injuries including organophosphate myopathy. It is an externally oriented membrane-bound enzyme and its main physiological role is termination of chemical transmission at cholinergic synapses and secretory organs by rapid hydrolysis of the neurotransmitter acetylcholine (ACh). ACHE plays important roles in the cholinergic system, and its dysregulation is involved in a variety of human diseases. ACHE was significantly down-regulated in the cancerous tissues of 69.2% of hepatocellular carcinoma (HCC) patients, and the low ACHE expression in HCC was correlated with tumor aggressiveness, an elevated risk of postoperative recurrence, and a low survival rate. Both the recombinant ACHE protein and the enhanced expression of ACHE significantly inhibited HCC cell growth in vitro and tumorigenicity in vivo. ACHE as a tumor growth suppressor in regulating cell proliferation, the relevant signaling pathways, and the drug sensitivity of HCC cells. Thus, ACHE is a promising independent prognostic predictor for HCC recurrence and the survival of HCC patients. ACHE is responsible for the hydrolysis of acetylcholine in the nervous system. It is inhibited by organophosphate and carbamate pesticides. However, this enzyme is only slightly inhibited by organophosphorothionates.