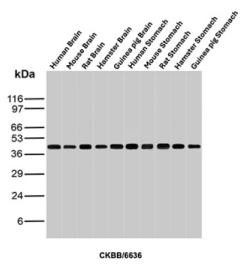
Creatine kinase B-type Antibody / CKBB [clone CKBB/6636] (V5660)

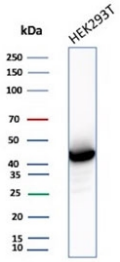
Catalog No.	Formulation	Size
V5660-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	100 ug
V5660-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	20 ug
V5660SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

Bulk quote request

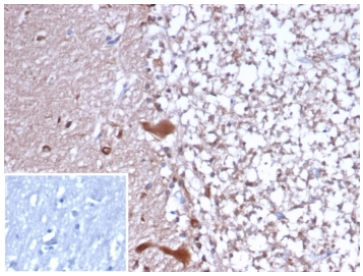
Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat, Hamster, Guinea pig
Format	Purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG1, kappa
Clone Name	CKBB/6636
Purity	Protein G affinity
UniProt	P12277
Localization	Cytoplasm
Applications	Immunohistochemistry (FFPE) : 1-2ug/ml Western Blot : 1-2ug/ml
Limitations	This Creatine kinase B-type antibody is available for research use only.



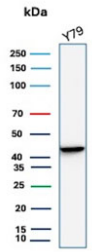
Western blot analysis of Human Brain, Mouse Brain, Rat Brain, Hamster Brain, Guinea pig Brain, Human Stomach, Mouse Stomach, Rat Stomach, Hamster Stomach and Guinea pig Stomach tissue lysates using Creatine kinase B-type antibody (clone CKBB/6636). Predicted molecular weight ~43 kDa.



Western blot testing of human HEK293 cell lysate with Creatine kinase B-type antibody (clone CKBB/6636). Predicted molecular weight ~43 kDa.



IHC staining of FFPE human cerebellum tissue with Creatine kinase B-type antibody (clone CKBB/6636). Inset: PBS used in place of primary Ab (secondary Ab negative control). HIER: boil tissue sections in pH 9 10mM Tris with 1mM EDTA for 20 min and allow to cool before testing.



Western blot testing of human Y79 cell lysate with Creatine kinase B-type antibody (clone CKBB/6636). Predicted molecular weight ~43 kDa.

Description

Creatine kinase B-type antibody detects Creatine kinase B-type, also known as CKBB, a cytosolic enzyme that plays an essential role in maintaining cellular energy balance by catalyzing the reversible transfer of phosphate between ATP and creatine. The UniProt recommended name is Creatine kinase B-type (CKB). This enzyme is a vital component of the phosphocreatine energy system, which rapidly regenerates ATP in tissues experiencing fluctuating energy demands, including brain, retina, and smooth muscle.

Functionally, Creatine kinase B-type antibody identifies a 43 kDa enzyme that forms homodimers (CKBB) and facilitates the transfer of high-energy phosphate bonds between mitochondria and ATP-dependent cellular processes. In neurons, CKB localizes near Na+/K+-ATPase pumps, synaptic vesicles, and cytoskeletal assemblies, where it provides localized ATP regeneration for neurotransmission and ion transport. By coupling ATP synthesis to utilization sites, CKB ensures that synaptic and electrical activity remain energy-efficient and stable under high demand. The enzyme also participates in antioxidant defense by maintaining mitochondrial energy supply during oxidative stress.

The CKB gene is located on chromosome 14q32.33 and encodes a 381-amino-acid protein. Each monomer contains catalytic domains for ATP and creatine binding, stabilized by magnesium ions that enable rapid phosphate transfer. CKB shares high sequence identity with muscle-type creatine kinase (CKM) but differs in tissue specificity and regulatory response. Expression is strongest in brain and neural tissues, but CKB is also present in retina, testis, and certain epithelial cells. Elevated CKBB levels in cerebrospinal fluid or serum are considered biochemical markers of neuronal injury, stroke, or hypoxic stress. In cancer biology, overexpression of CKB correlates with enhanced metabolic adaptation and cell motility in tumors such as small-cell lung carcinoma and colorectal cancer.

Creatine kinase B-type antibody is widely used in research investigating brain metabolism, energy transfer, and tumor bioenergetics. Common applications include western blotting, immunofluorescence, and immunohistochemistry. CKB's central role in the phosphocreatine shuttle makes it a reliable indicator of cellular energy status. Knockout models demonstrate that loss of Ckb impairs phosphocreatine buffering, reduces synaptic transmission efficiency, and increases

sensitivity to metabolic stress, confirming its critical importance in sustaining neuronal performance.

Outside of neural systems, CKB contributes to energy support in sperm motility, smooth muscle contraction, and retinal signaling. It is regulated by pH, redox balance, and phosphorylation, adapting its activity to environmental and metabolic conditions. By detecting this enzyme, Creatine kinase B-type antibody provides a valuable tool for studying cellular energy distribution, metabolic resilience, and bioenergetic dysfunction. NSJ Bioreagents offers this antibody validated for research use in metabolism, oncology, and neuroscience applications.

Application Notes

Optimal dilution of the Creatine kinase B-type antibody should be determined by the researcher.

Immunogen

A recombinant human full-length CKB protein was used as the immunogen for the Creatine kinase B-type antibody.

Storage

Aliquot the Creatine kinase B-type antibody and store frozen at -20oC or colder. Avoid repeated freeze-thaw cycles.