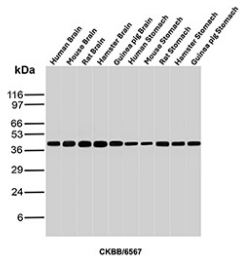
Creatine kinase B Antibody / CKBB / CKB [clone CKBB/6567] (V4370)

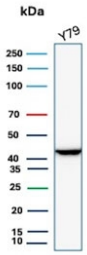
Catalog No.	Formulation	Size
V4370-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	100 ug
V4370-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced), 0.05% sodium azide	20 ug
V4370SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

Bulk quote request

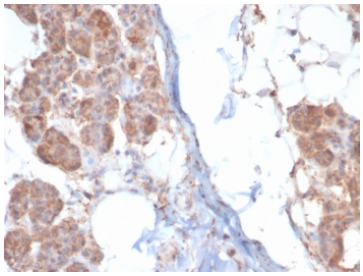
Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat, Hamster, Guinea pig
Format	Purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG1, kappa
Clone Name	CKBB/6567
Purity	Protein A/G affinity
UniProt	P12277
Localization	Cytoplasm
Applications	ELISA (Order BSA-free Format For Coating) : Western Blot : 1-2ug/ml Immunohistochemistry (FFPE) : 1-2ug/ml for 30 min at RT
Limitations	This Creatine kinase B antibody is available for research use only.



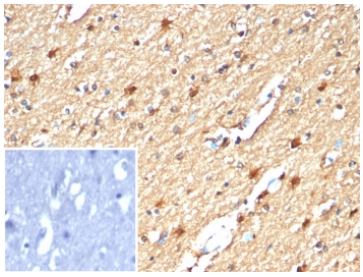
Western blot analysis of Human Brain, Mouse Brain, Rat Brain, Hamster Brain, Guinea pig Brain, Human Stomach, Mouse Stomach, Rat Stomach, Hamster Stomach and Guinea pig Stomach tissue lysates using Creatine kinase B antibody (clone CKBB/6567). Predicted molecular weight ~43 kDa.



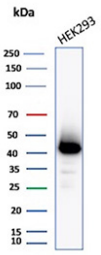
Western blot testing of human Y79 cell lysate with Creatine kinase B antibody (clone CKBB/6567). Predicted molecular weight ~43 kDa.



IHC staining of FFPE human salivary gland tissue with Creatine kinase B antibody (clone CKBB/6567). HIER: boil tissue sections in pH 9 10mM Tris with 1mM EDTA for 20 min and allow to cool before testing.



IHC staining of FFPE human brain tissue with Creatine kinase B antibody (clone CKBB/6567). 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 HEK293 cell lysate with Creatine kinase B antibody (clone CKBB/6567). Predicted molecular weight ~43 kDa.

Description

Creatine kinase B antibody detects Creatine kinase B-type, also known as brain-type creatine kinase, an enzyme that plays a central role in cellular energy metabolism by catalyzing the reversible transfer of a phosphate group from phosphocreatine to ADP to regenerate ATP. The UniProt recommended name is Creatine kinase B-type (CKB), with alternate names CK-BB, brain creatine kinase, and creatine kinase, brain-type. CKB belongs to the creatine kinase family of phosphotransferases, which includes cytosolic (CKM, CKB) and mitochondrial (CKMT1, CKMT2) isoforms that work in concert to buffer cellular ATP levels and sustain energy homeostasis in high-demand tissues.

Functionally, Creatine kinase B antibody identifies a 43 kDa cytosolic enzyme that forms either homodimers (CKBB) or heterodimers with the M-type subunit (CKMB) depending on tissue type. CKB is predominantly expressed in brain, nervous tissue, and smooth muscle, where it supports synaptic transmission, ion transport, and neurotransmitter release by maintaining ATP availability at critical cellular sites. In neurons, CKB localizes to synaptic vesicles and plasma membranes, coupling energy metabolism to neurotransmission. In glial cells, it contributes to maintaining phosphocreatine reserves during high energy demand. Dysregulation or damage-induced release of CKBB into cerebrospinal fluid or serum is a sensitive indicator of brain injury, hypoxia, or neurodegenerative disease.

The Creatine kinase B antibody is widely employed in immunohistochemistry, western blotting, and ELISA for detecting

CKB expression in neural tissue, tumors, and cultured cells. In cancer research, elevated CKBB expression is observed in small-cell lung carcinoma, colorectal cancer, and medulloblastoma, where it supports tumor cell proliferation and migration by enhancing ATP turnover and cytoskeletal dynamics. Because CKBB is absent from most normal epithelial tissues, its presence can serve as a diagnostic biomarker in malignancies of neural or neuroendocrine origin. Clinical studies also utilize CKBB as a marker for perinatal asphyxia and ischemic brain injury.

Structurally, CKB is a dimeric enzyme composed of two identical 381-amino acid subunits encoded by the CKB gene on chromosome 14q32.33. It shares approximately 80% sequence identity with the M-type isoform (CKM), and the two subunits differ mainly in their tissue distribution and kinetic regulation. CKB contains conserved catalytic residues including the active-site cysteine and ATP-binding loop characteristic of phosphagen kinases. The enzyme operates in both the cytosol and peripheral cellular membranes, often tethered to the cytoskeleton or ion pumps to facilitate rapid ATP regeneration near energy-consuming processes.

Creatine kinase B antibody enables detailed study of bioenergetic compartmentalization and metabolic adaptation. In the central nervous system, the creatine-phosphocreatine shuttle mediated by CKB ensures energy coupling between mitochondria and synaptic terminals. Knockout studies in mice demonstrate that loss of Ckb leads to impaired synaptic transmission, memory deficits, and heightened susceptibility to hypoxia-induced injury. Beyond the brain, CKB contributes to sperm motility and auditory cell function, indicating broader roles in specialized energy-demanding cell types.

CKB expression is transcriptionally regulated by CREB, NRF1, and Sp1 transcription factors, reflecting coordination with oxidative metabolism and mitochondrial biogenesis. Under hypoxic or ischemic conditions, CKB expression decreases, leading to energy imbalance and increased neuronal vulnerability. Conversely, overexpression of CKB enhances cellular survival during oxidative stress by maintaining ATP regeneration capacity. Researchers use Creatine kinase B antibody to explore metabolic regulation, brain energetics, tumor metabolism, and diagnostic pathology. NSJ Bioreagents provides validated antibodies recognizing human, mouse, and rat CKB across multiple applications, ensuring reproducible detection of this essential metabolic enzyme.

Application Notes

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

Immunogen

Recombinant human full-length protein was used as the immunogen for the Creatine kinase B antibody.

Storage

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