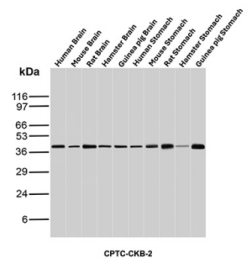
CKB Antibody / Creatine Phosphokinase-BB [clone CPTC-CKB-2] (V7682)

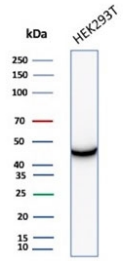
Catalog No.	Formulation	Size
V7682-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced) and 0.05% sodium azide	100 ug
V7682-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced) and 0.05% sodium azide	20 ug
V7682SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

Bulk quote request

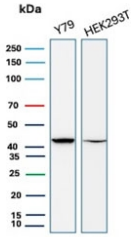
Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG2b, kappa
Clone Name	CPTC-CKB-2
Purity	Protein G affinity chromatography
UniProt	P12277
Localization	Cytoplasmic
Applications	Western Blot : 2-4ug/ml
Limitations	This CKB antibody is available for research use only.



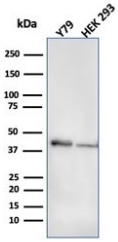
Western blot analysis of Human Brain, Mouse Brain, Rat Brain, Hamster Brain, Guinea pig Brain, Human Stomach, Mouse Stomach, Rat Stomach, Hamster Stomach and Guinea pig Stomach tissue lysates using Creatine kinase B antibody (clone CPTC-CKB-2). Predicted molecular weight ~43 kDa.



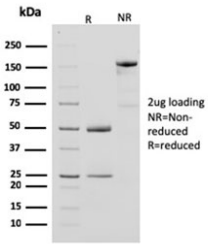
Western blot testing of human HEK293 cell lysate with CKB antibody (clone CPTC-CKB-2). Predicted molecular weight ~43 kDa.



Western blot testing of human Y79 and HEK293 cell lysate with CKB antibody (clone CPTC-CKB-2). Predicted molecular weight ~43 kDa.



Western blot testing of human Y79 and HEK293 cell lysate with CKB antibody (clone CPTC-CKB-2). Predicted molecular weight ~43 kDa.



SDS-PAGE analysis of purified, BSA-free CKB antibody (clone CPTC-CKB-2) as confirmation of integrity and purity.

Description

CKB antibody detects Creatine phosphokinase-BB, the brain-type isoform of the creatine kinase family responsible for maintaining intracellular energy equilibrium through the reversible conversion of creatine and ATP into phosphocreatine and ADP. The UniProt recommended name is Creatine kinase B-type (CKB), and it is also referred to as brain creatine kinase, CK-BB isoenzyme, and cytosolic creatine phosphotransferase B. This enzyme plays a vital role in buffering and distributing energy within cells that experience fluctuating ATP demands, particularly neurons and glial cells.

Functionally, CKB antibody identifies a cytosolic enzyme that dimerizes to form CKBB homodimers or associates with M-type subunits to form CKMB heterodimers. In the central nervous system, CKBB ensures a rapid energy supply for neurotransmission, ion transport, and signal propagation by regenerating ATP at presynaptic terminals and postsynaptic membranes. In addition to its abundant expression in brain tissue, CKB is found in retina, smooth muscle, and certain endocrine and reproductive tissues, where it supports localized energy turnover. Damage to neural tissues releases CKBB into serum and cerebrospinal fluid, making it a sensitive marker for neuronal injury, hypoxic encephalopathy, and stroke.

At the structural level, the CKB protein consists of 381 amino acids organized into an alpha/beta fold that houses both creatine-binding and ATP-binding pockets. The enzymeÃ¢Â€Â™s catalytic activity depends on magnesium and

phosphate cofactors and is finely tuned to preserve ATP/ADP ratios under high metabolic demand. CKB antibody detection is valuable in biochemical studies, immunohistochemistry, and immunoblotting for assessing neuronal metabolism, ischemic damage, and tumor energetics. Because CKBB is distinct from muscle-specific CKM and mitochondrial CKMT isoforms, its presence offers tissue specificity for nervous and endocrine system studies.

Clinical investigations highlight CKBÃ¢Â€Â™s diagnostic importance: elevated serum CKBB levels are detected in brain trauma, neuroblastoma, small-cell lung carcinoma, and colorectal cancers. Overexpression of CKB in tumors supports glycolytic flux and enhances survival under hypoxia by sustaining ATP availability. Experimental silencing of CKB in tumor cells reduces proliferation, migration, and metastatic potential, emphasizing its contribution to cancer bioenergetics. The CKB antibody is thus widely used to investigate metabolic remodeling in malignancies and to differentiate CKBB-positive neuroendocrine tumors from other epithelial types.

The CKB gene resides on chromosome 14q32.33 and encodes a homodimeric enzyme that operates in tandem with the phosphocreatine shuttle system. CKB interacts with cytoskeletal proteins and ion pumps such as Na+/K+-ATPase to channel ATP directly to energy-consuming processes. Its promoter region contains cAMP-response elements, linking CKB expression to neuronal activity and hormonal signaling. Studies in knockout mice reveal neurological dysfunction, memory deficits, and impaired synaptic energy transfer in the absence of Ckb expression. These phenotypes underline its essential role in maintaining energetic balance during sustained neuronal excitation.

Beyond the nervous system, CKB participates in sperm motility, auditory signaling, and smooth muscle contraction. It also provides antioxidant defense by stabilizing mitochondrial function under oxidative stress. Detection with CKB antibody aids research into brain metabolism, ischemia, cancer metabolism, and mitochondrial energetics. NSJ Bioreagents supplies validated reagents that deliver strong specificity and sensitivity across human, mouse, and rat samples, supporting applications in neuroscience, oncology, and metabolic research.

Application Notes

Optimal dilution of the CKB antibody should be determined by the researcher.

Immunogen

Recombinant human full-length protein was used as the immunogen for the CKB antibody.

Storage

Store the CKB antibody at 2-8oC (with azide) or aliquot and store at -20oC or colder (without azide).