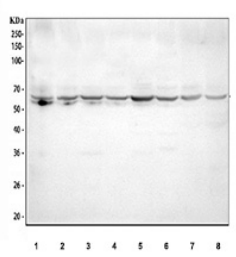
TFEB Antibody / Transcription Factor EB (RQ5769)

Catalog No.	Formulation	Size
RQ5769	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Affinity purified
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	P19484
Applications	Western Blot : 0.5-1ug/ml Direct ELISA : 0.1-0.5ug/ml
Limitations	This TFEB antibody is available for research use only.



Western blot testing of human 1) K562, 2) HEK293, 3) HeLa, 4) Jurkat, 5) HepG2, 6) Raji, 7) A549 and 8) SW620 cell lysate with TFEB antibody. A major band is detected at approximately 65 kDa in all samples, which migrates higher than the predicted 53 kDa size and reflects the phosphorylated forms of TFEB. Several cell lines show a faint lower band around 60 kDa, consistent with a less phosphorylated TFEB species.

Description

TFEB antibody detects Transcription Factor EB, a master regulator of lysosomal biogenesis, autophagy, and cellular metabolic adaptation. The UniProt recommended name is Transcription factor EB (TFEB). This basic helix-loop-helix leucine zipper transcription factor belongs to the MiT/TFE family and functions as a central coordinator of the CLEAR (Coordinated Lysosomal Expression and Regulation) gene network, controlling expression of genes required for lysosome formation, autophagosome maturation, and cellular stress responses.

Functionally, TFEB antibody identifies a 476-amino-acid nuclear transcription factor that regulates gene expression in response to nutrient availability, lysosomal status, and cellular energy demand. Under nutrient-rich or unstressed conditions, TFEB is phosphorylated by kinases such as mTOR and ERK, promoting its sequestration in the cytoplasm. Stress signals including starvation, lysosomal dysfunction, or mitochondrial damage lead to TFEB dephosphorylation, enabling its translocation to the nucleus where it activates CLEAR target genes. This activation enhances autophagic flux, increases lysosomal degradative capacity, and promotes metabolic reprogramming to maintain cellular homeostasis.

The TFEB gene is located on chromosome 6p21.1 and is expressed in many tissues, including liver, muscle, kidney, and immune cells. TFEB integrates nutrient sensing with organelle biogenesis, linking lysosomal function to whole-cell metabolism. It also contributes to mitochondrial quality control, lipid catabolism, and stress resilience. In immune cells, TFEB helps coordinate antigen processing and inflammatory signaling by modulating lysosomal activity. Within metabolic tissues, TFEB supports adaptation to fasting and exercise by enhancing lipid utilization and clearing damaged organelles.

Pathologically, dysregulation of TFEB signaling is implicated in lysosomal storage disorders, neurodegenerative diseases, metabolic dysfunction, and cancer. Mutations or altered expression of TFEB can impair lysosomal clearance, contributing to accumulation of undegraded substrates seen in disorders such as Pompe disease, Niemann-Pick disease, and related conditions involving autophagyÃ¢Â€Â“lysosome pathway dysfunction. In neurodegenerative diseases, reduced TFEB activity correlates with accumulation of pathological proteins including alpha-synuclein, tau, and amyloid precursor-derived species. Conversely, aberrant TFEB activation or gene translocation can contribute to renal cell carcinoma and other malignancies by promoting metabolic plasticity and survival under stress. Research using TFEB antibody supports studies in autophagy, lysosomal regulation, metabolic adaptation, neurodegeneration, and oncogenic signaling.

TFEB antibody is validated for use in relevant research applications to detect Transcription Factor EB expression and study its role in CLEAR network activation, autophagy regulation, and cellular stress responses. NSJ Bioreagents provides TFEB antibody reagents optimized for cell biology, neuroscience, metabolic disease research, and lysosomal biology.

Application Notes

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

Immunogen

Recombinant human protein (amino acids E68-L350) was used as the immunogen for the TFEB antibody.

Storage

After reconstitution, the TFEB antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.