Revision 2

Store at -20C

#24876

Sequestosome Signaling Antibody Sampler Kit

1 Kit (6 x 20 microliters)

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Product Includes	Product #	Quantity	Mol. Wt	Isotype/Source
SQSTM1/p62 (D5E2) Rabbit mAb	8025	20 µl	62 kDa	Rabbit IgG
TRAF6 (D21G3) Rabbit mAb	8028	20 µl	60 kDa	Rabbit IgG
K63-linkage Specific Polyubiquitin (D7A11) Rabbit mAb	5621	20 µl		Rabbit IgG
TrkA (12G8) Rabbit mAb	2510	20 µl	140 kDa	Rabbit IgG
NRF2 (D1Z9C) XP® Rabbit mAb	12721	20 µl	97-100 kDa	Rabbit IgG
KEAP1 (D6B12) Rabbit mAb	8047	20 µl	60-64 kDa	Rabbit IgG
Anti-rabbit IgG, HRP-linked Antibody	7074	100 µl		Goat

Please visit cellsignal.com for individual component applications, species cross-reactivity, dilutions, protocols, and additional product information.

Description

The Sequestosome Signaling Antibody Sampler Kit contains reagents to investigate sequestosome signaling within the cell. The kit contains enough antibodies to perform two western blot experiments per primary antibody.

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Background

Sequestosome 1 (SQSTM1, p62) is a ubiquitin binding protein involved in cell signaling, oxidative stress, and autophagy (1-4). It was first identified as a protein that binds to the SH2 domain of p56Lck (5) and independently found to interact with PKCζ (6,7). SQSTM1 was subsequently found to interact with ubiquitin, providing a scaffold for several signaling proteins and triggering degradation of proteins through the proteasome or lysosome (8). Interaction between SQSTM1 and TRAF6 leads to the K63-linked polyubiquitination of TRAF6 and subsequent activation of the NF-κB pathway (9). Protein aggregates formed by SQSTM1 can be degraded by the autophagosome (4,10,11). SQSTM1 binds autophagosomal membrane protein LC3/Atg8, bringing SQSTM1-containing protein aggregates to the autophagosome (12). Lysosomal degradation of autophagosomes leads to a decrease in SQSTM1 levels during autophagy; conversely, autophagy inhibitors stabilize SQSTM1 levels. SQSTM1 also interacts with KEAP1, which is a cytoplasmic inhibitor of NRF2, a key transcription factor involved in cellular responses to oxidative stress (3). Under basal conditions, KEAP1 binds and retains NRF2 in the cytoplasm where it can be targeted for ubiquitin-mediated degradation (13). Small amounts of constitutive nuclear NRF2 maintain cellular homeostasis through regulation of basal expression of antioxidant response genes. Following oxidative or electrophilic stress, KEAP1 releases NRF2, thereby allowing the activator to translocate to the nucleus and bind to ARE-containing genes (14). The coordinated action of NRF2 and other transcription factors mediates the response to oxidative stress (15). Thus, accumulation of SQSTM1 can lead to an increase in NRF2 activity (3). KEAP1 also targets the down regulation of NF-κB activity by targeting IKKβ degradation (16). TrkA is a member of Trk receptor tyrosine kinases and is activated by NGF, which stimulates TrkA polyubiquitination (17,18). TrkA regulates proliferation and is important for development and maturation of the nervous system (19). SQSTM1 interaction with TRAF6 controls synthesis of K63 polyubiquititination on TrkA (18, 20). TrkA polyubiquitination is essential for neurotrophin-dependent receptor internalization, cell differentiation, and signaling (18).

Background References

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