Product Datasheet

Biological Description

Specificity	Phospho-Tuberin (Ser939) Antibody [B6P7] recognizes endogenous levels of tuberin only when phosphorylated at serine 939.
Background	Phospho-Tuberin (Ser939) refers to the phosphorylated form of tuberin, the TSC2 gene product, at serine residue 939, a critical site regulated by growth factor signaling. Tuberin is a tumor suppressor protein containing functional domains for GAP activity toward Rheb, and it forms a complex with hamartin (TSC1) to inhibit mTORC1 signaling and control cell growth. Tuberin comprises of an N-terminal region that binds hamartin, a central region that interacts with cyclin B1, a leucine zipper (LZ) and coiled-coil (CC) domain for protein-protein interactions, and a C-terminal GTPase-activating (GAP) domain essential for Rheb inhibition. Tuberin is predominantly expressed in various tissues, particularly in the brain, kidney, and skin, where it suppresses tumor formation. Upon growth factor stimulation, kinases such as AKT and TACC3 phosphorylate Ser939, promoting the binding of 14-3-3 proteins. This phosphorylation does not impair tuberin's intrinsic GAP activity but causes its translocation from membrane-associated compartments—where it represses Rheb—to the cytosol, effectively relieving mTOR inhibition. Ser939 phosphorylation thus plays a key role in regulating mTORC1 signaling during mitogen stimulation and also localizes tuberin to the mitotic apparatus during cell division, linking cell growth signals with proper cytokinesis and cell cycle progression.

Usage Information

Application	WB	Dilution	WB 1:1000 - 1:10000
Reactivity	Human, Mouse		
Source	Rabbit Monoclonal Antibody	MW	201 kDa
Storage Buffer	PBS, pH 7.2+50% Glycerol+0.05% BSA+0.01% NaN3		
Storage (from the date of receipt)	-20°C (avoid freeze-thaw cycles), 2 years		

Experimental Methods

WB

Experimental Protocol:

Sample preparation
1. Tissue: Lyse the tissue sample by adding an appropriate volume of ice-cold **RIPA/NP-40 Lysis Buffer (containing Protease Inhibitor Cocktail, Phosphatase Inhibitor Cocktail)**，and homogenize the tissue at a low temperature or lyse it by sonication on ice, then incubate on ice for 30 minutes.
2. Adherent cell: Aspirate the culture medium and wash the cells with ice-cold PBS twice. Lyse the cells by adding an appropriate volume of **RIPA/NP-40 Lysis Buffer (containing Protease Inhibitor Cocktail, Phosphatase Inhibitor Cocktail)**, sonicate to lyse the cells, and incubate on ice for 30 minutes.
3. Suspension cell: Transfer the culture medium to a pre-cooled centrifuge tube. Centrifuge and aspirate the supernatant. Wash the cells with ice-cold PBS twice. Lyse the cells by adding an appropriate volume of **RIPA/NP-40 Lysis Buffer (containing Protease Inhibitor Cocktail, Phosphatase Inhibitor Cocktail)**, sonicate to lyse the cells, and incubate on ice for 30 minutes.
4. Place the lysate into a pre-cooled microcentrifuge tube. Centrifuge at 4°C for 15 min. Collect the supernatant;
5. Remove a small volume of lysate to determine the protein concentration;
6. Combine the lysate with protein loading buffer. Boil 20 µL sample under 95-100°C for 5 min. Centrifuge for 5 min after cool down on ice.

Electrophoretic separation
1. According to the concentration of extracted protein, load appropriate amount of protein sample and marker onto SDS-PAGE gels for electrophoresis. **Recommended separating gel (lower gel) concentration: 5%.** Reference Table for Selecting SDS-PAGE Separation Gel Concentrations
2. Power up 80V for 30 minutes. Then the power supply is adjusted (110 V~150 V), the Marker is observed, and the electrophoresis can be stopped when the indicator band of the predyed protein Marker where the protein is located is properly separated. (Note that the current should not be too large when electrophoresis, too large current (more than 150 mA) will cause the temperature to rise, affecting the result of running glue. If high currents cannot be avoided, an ice bath can be used to cool the bath.)

Transfer membrane
1. Take out the converter, soak the clip and consumables in the pre-cooled converter;
2. Activate PVDF membrane with methanol for 1 min and rinse with transfer buffer;
3. Install it in the order of "black edge of clip - sponge - filter paper - filter paper - glue -PVDF membrane - filter paper - filter paper - sponge - white edge of clip";
4. The protein was electrotransferred to PVDF membrane. (0.45 µm PVDF membrane is recommended) Reference Table for Selecting PVDF Membrane Pore Size Specifications
Recommended conditions for wet transfer: **250 mA, 180 min**.
(Note that the transfer conditions can be adjusted according to the protein size. For high-molecular-weight proteins, a higher current and longer transfer time are recommended. However, ensure that the transfer tank remains at a low temperature to prevent gel melting.)

Block
1. After electrotransfer, wash the film with TBST at room temperature for 5 minutes;
2. Incubate the film in the blocking solution **(recommending 5% BSA solution)** for 1 hour at room temperature;
3. Wash the film with TBST for 3 times, 5 minutes each time.

Antibody incubation
1. Use 5% skim milk powder to prepare the primary antibody working liquid (recommended dilution ratio for primary antibody 1:1000), gently shake and incubate with the film at 4°C overnight;
2. Wash the film with TBST 3 times, 5 minutes each time;
3. Add the secondary antibody to the blocking solution and incubate with the film gently at room temperature for 1 hour;
4. After incubation, wash the film with TBST 3 times for 5 minutes each time.

Antibody staining
1. Add the prepared ECL luminescent substrate (or select other color developing substrate according to the second antibody) and mix evenly;
2. Incubate with the film for 1 minute, remove excess substrate (keep the film moist), wrap with plastic film, and expose in the imaging system. **(Exposure time of at least 120s is recommended)**

References

https://pubmed.ncbi.nlm.nih.gov/16636147/ https://pubmed.ncbi.nlm.nih.gov/35096832/

Application Data

WB

Validated by Capsid Bio



Lane 1: SH-SY5Y, Lane 2: SH-SY5Y (Okadaic Acid, 200nM and Calyculin A, 1uM, 60 min), Lane 3: SH-SY5Y (Okadaic Acid, 200nM and Calyculin A, 1uM, 60 min; phosphatase-treated)