Phospho-JAK1 (Tyr1034/1035)/JAK2 (Tyr1007/1008) Antibody [L3G19]

Catalog No.C15368 Batch:C1536803

Product Datasheet

Biological Description

Specificity	Phospho-JAK1 (Tyr1034/1035)/JAK2 (Tyr1007/1008) Antibody [L3G19] detects endogenous levels of Jak2 protein only when phosphorylated at Tyr1007 and Tyr1008 and endogenous levels of Jak1 when phosphorylated at Tyr1034 and Tyr1035.
Background	Phospho-JAK1 (Tyr1034/1035) and Phospho-JAK2 (Tyr1007/1008) represent the activated forms of the Janus kinases JAK1 and JAK2, members of the JAK family of non-receptor tyrosine kinases that mediate cytokine and growth factor receptor signaling. Structurally, JAKs contain seven conserved Janus homology (JH1–JH7) domains: an N-terminal FERM domain for receptor binding, an SH2-like domain, a regulatory pseudokinase domain (JH2), and a C-terminal tyrosine kinase domain (JH1). They are constitutively associated with the cytoplasmic tails of diverse cytokine receptors and are ubiquitously expressed, with JAK1 broadly required for interferon and γc family cytokine signaling, and JAK2 essential for erythropoietin, thrombopoietin, GM-CSF, and other hematopoietic cytokine pathways. Their function is to phosphorylate receptor chains and STAT transcription factors, thereby initiating gene expression programs controlling immunity, hematopoiesis, and development. The phosphorylation of JAK1 at Tyr1034/1035 and JAK2 at Tyr1007/1008 occurs within the activation loop of the JH1 kinase domain and is the critical event that stabilizes the active conformation of the kinase. These residues are phosphorylated via cytokine-induced receptor dimerization and trans-phosphorylation between JAK molecules, relieving autoinhibition by the pseudokinase domain. This phosphorylation is required to fully activate catalytic activity, enabling efficient phosphorylation of downstream substrates (receptors, STATs, and JAKs themselves). Thus, phospho-JAK1 (Tyr1034/1035) and phospho-JAK2 (Tyr1007/1008) serve as key molecular switches for turning on JAK–STAT signaling and are widely used as biomarkers of pathway activation.

Usage Information

Application	WB, IP	Dilution	WB: 1:1000; IP: 1:100
Reactivity	Human, Mouse		
Source	Mouse Monoclonal Antibody	MW	125 kDa, 130 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: **200 mA, 120 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 90s is recommended)**

References

https://pubmed.ncbi.nlm.nih.gov/29379470/ https://pubmed.ncbi.nlm.nih.gov/32083640/

Application Data

WB

Validated by Capsid Bio



Lane 1: U266, Lane 2: U266 (IFNα, 50ng/ml, 15 min)