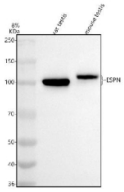
# ESPN Antibody / Espin (FY12640)

| Catalog No. | Formulation | Size |
|---|---|---|
| FY12640 | Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml | 100 ug |

**Bulk quote request**

| | |
|---|---|
| **Availability** | 1-2 days |
| **Species Reactivity** | Mouse, Rat |
| **Format** | Lyophilized |
| **Host** | Rabbit |
| **Clonality** | Polyclonal (rabbit origin) |
| **Isotype** | Rabbit IgG |
| **Purity** | Immunogen affinity purified |
| **Buffer** | Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4. |
| **UniProt** | B1AK53 |
| **Applications** | Western Blot : 0.25-0.5ug/ml<br>ELISA : 0.1-0.5ug/ml |
| **Limitations** | This ESPN antibody is available for research use only. |



Western blot analysis of ESPN using anti-ESPN antibody. Electrophoresis was performed on a 8% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: rat testis tissue lysates, Lane 2: mouse testis tissue lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-ESPN antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using an ECL Plus Western Blotting Substrate. Western blot probed with anti-ESPN shows a major band at ~100 kDa in rat testis and ~110 kDa in mouse testis, higher than the predicted ~92 kDa, consistent with species-specific espin isoforms and phosphorylated forms expressed during spermatogenesis.

## Description

ESPN antibody detects Espin, an actin-binding protein essential for the assembly and maintenance of parallel actin bundles in sensory cells, particularly in the stereocilia of hair cells in the inner ear. ESPN is required for hearing and

balance by supporting the structural integrity of mechanosensory projections. The ESPN antibody is widely used in auditory biology, cytoskeletal, and sensory neuroscience research to study actin organization, hair cell morphology, and mechanotransduction.

ESPN is encoded by the ESPN gene located on human chromosome 1p36.31. The protein exists in multiple isoforms ranging from 1,000 to 1,100 amino acids, each containing actin-binding and proline-rich domains that mediate crosslinking of actin filaments. ESPN localizes to microvillar and stereociliary actin cores, where it provides structural reinforcement and length regulation.

The ESPN antibody detects bands between 90 and 110 kilodaltons depending on isoform and shows intense labeling of stereocilia and microvilli under immunofluorescence microscopy. ESPN promotes actin bundle stability by counteracting depolymerizing factors such as cofilin, ensuring the long-term maintenance of hair cell stereocilia. Its overexpression induces elongation of actin protrusions, while loss of function causes disorganization and degeneration of stereocilia, leading to deafness.

Mutations in ESPN are responsible for autosomal recessive deafness and vestibular dysfunction in both humans and animal models. Beyond auditory tissue, ESPN contributes to brush border maintenance in epithelial cells and to filopodia dynamics in neurons and immune cells, reflecting its broad cytoskeletal role.

Because of its crucial function in actin filament assembly and mechanosensory integrity, ESPN serves as a vital biomarker for studies of hearing, balance, and cytoskeletal structure. NSJ Bioreagents provides a validated ESPN antibody optimized for its applications, supporting investigations into actin regulation, auditory biology, and cellular architecture.

## Application Notes

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

## Immunogen

E.coli-derived human ESPN recombinant protein (Position: H143-Y854) was used as the immunogen for the ESPN antibody.

## Storage

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