

**RiboCluster Profiler™**

RIP-Certified Antibody

## Anti-STAU2 (Human) pAb

<b>Code No.</b>	<b>Quantity</b>	<b>Concentration</b>	<b>Form</b>
RN013P	200 µL	1 mg/mL	Affinity Purified

**BACKGROUND:** The mammals possess two genes encoding for Stau1 (Stau1) and Stau2 (Stau2), double-stranded RNA binding proteins. Three Stau2 isoforms with molecular weights of 62, 59 and 52 kDa are identified. Stau2 is mainly expressed in nervous system, whereas Stau1 is expressed more ubiquitously. The Stau proteins are localized in the somatodendritic domain of neurons and play important role in dendritic mRNA targeting. Stau2 was shown to shuttle between the nucleus and the cytoplasm. In order to identify mRNA targets of Stau proteins, mRNP Immunoprecipitation (RIP) technology was employed and identified distinct but overlapping subset of cellular mRNAs associated with Stau1 and Stau2-containing ribonucleoprotein complexes.

### RIP-CERTIFIED ANTIBODY:

Posttranscriptional regulation of gene expression is a ribonucleoprotein-driven process, which involves RNA binding proteins (RBPs) and non-coding RNAs that affect splicing, nuclear export, subcellular localization, mRNA decay and translation. The RNP Immunoprecipitation-Chip (RIP-Chip), RIP-Seq and RIP-RT-PCR allow the identification of multiple RNA targets of RBPs globally and within the context of a cell extract. Antibodies specific to the RNA binding protein of interest are used to co-immunoprecipitate the RNA binding protein and the associated subset of mRNAs. The mRNA content is interrogated using standard microarray or sequencing technology. RIP-Certified Antibody is validated for use in RNP Immunoprecipitation (RIP) in conjunction with the RIP-Assay Kit distributed from MBL. Its ability to immunoprecipitate mRNAs and RBPs complex was confirmed by quantitative and qualitative analysis on NanoDrop, Bioanalyzer and RT-PCR or microarray.

**SOURCE:** This antibody was purified from rabbit serum by affinity column chromatography. The rabbit was immunized with KLH conjugated synthetic peptide, TNLQDQLEKTGENKGSWG corresponding to 379-396 aa.

**FORMULATION:** 200 µL volume of PBS containing 50% glycerol, pH 7.2. No preservative is contained.

**STORAGE:** This antibody solution is stable for one year from the date of purchase when stored at -20°C.

### INTENDED USE:

For Research Use Only. Not for use in diagnostic procedures.

**REACTIVITY:** This antibody reacts with human STAU2 (~62 kDa) on Western blotting, Immunoprecipitation and RNP Immunoprecipitation.

### APPLICATIONS:

RNP Immunoprecipitation: 15 µg/500 µL of cell extract from  $1 \times 10^7$  cells

Western blotting: 1:1,000

Immunoprecipitation: 5 µg/250 µL of cell extract from  $2.5 \times 10^6$  cells

Immunohistochemistry: Not tested

Immunocytochemistry: Not tested

Flow cytometry: Not tested

Detailed procedure is provided in the following **PROTOCOLS.**

### REFERENCES:

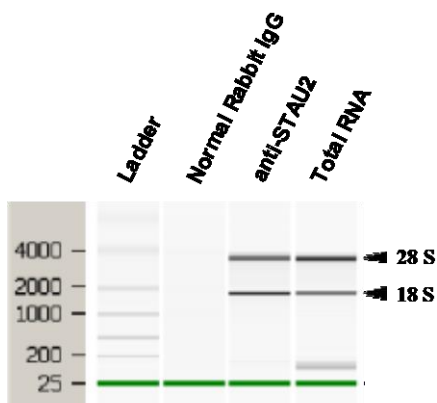
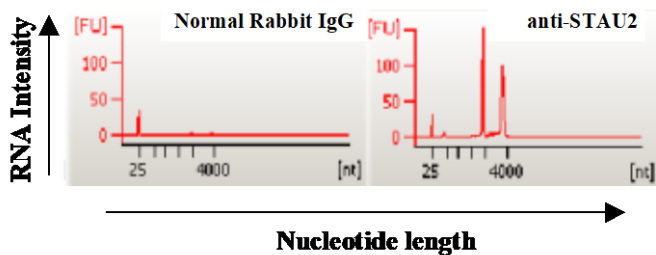
- 1) Furic, L., *et al.*, *RNA* **14**, 324-335 (2008)
- 2) Miki, T., *et al.*, *Cell Struct. Funct.* **30**, 51-56 (2005)
- 3) Macchi, P., *et al.*, *J. Biol. Chem.* **279**, 31440-31444 (2004)

### SPECIES CROSS REACTIVITY:

Species	Human	Mouse	Rat	Hamster
Cells	K562, 293T, HeLa, Jurkat, IMR-32, SK-SY-5Y	Not tested	Not tested	Not tested
Reactivity on WB	+			

### RELATED PRODUCTS:

Please visit our website at <https://ruo.mbl.co.jp/>.



### Analysis of isolated RNA with Bioanalyzer.

Average of the RNA Quantity (n=2)	
Antibody	RNA (ng)
Normal Rabbit IgG	54.0
anti-STAU2	527.0
Total RNA	133300.0

## PROTOCOLS:

### RNP Immunoprecipitation

Some buffer and reagents are included in the RIP-Assay Kit (MBL, code no. RN1001). Please also refer to the protocol packaged in the RIP-Assay Kit.

#### [Material Preparation]

##### 1. Lysis Buffer (+)

Before using the Lysis Buffer, protease inhibitors, RNase inhibitors, and DTT are added to the Lysis Buffer at the appropriate concentration.

##### 2. Wash Buffer (+)

Before using the Wash Buffer, DTT is added to the Wash Buffer at the appropriate concentration.

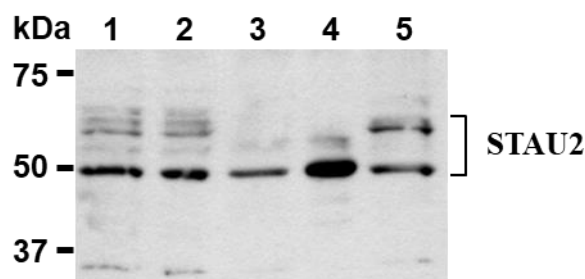
#### Protocol

- 1) Wash  $1 \times 10^7$  cells twice with PBS and resuspend them with 500  $\mu$ L of ice-cold Lysis Buffer (+) containing appropriate protease inhibitors, RNase inhibitors, and DTT. Vortex for 10 seconds. Leave on ice for 10 minutes.
- 2) Centrifuge the tube at 12,000 x g for 5 minutes at 4°C and transfer the supernatant to another tube.
- 3) Add 25  $\mu$ L of 50% protein A agarose beads slurry resuspended in Lysis Buffer (+) into the supernatant. Incubate it at 4°C with rotating for 1 hour.
- 4) Centrifuge the tube at 2,000 x g for 1 minute at 4°C and

transfer the supernatant to another tube (precleared sample).

- 5) Mix both 25  $\mu$ L of 50% protein A agarose beads slurry resuspended in nuclease-free PBS and Normal Rabbit IgG (RIP-Assay Kit) or Anti-STAU2 (Human) pAb (MBL, code no. RN013P) at the amount of suggested in the **APPLICATIONS**, and then add 1 mL of Wash buffer (+) into each tube. Incubate with gently agitation for 1 hour at 4°C.
- 6) Centrifuge the tube at 2,000 x g for 1 minute, and carefully discard the supernatant using a pipettor without disturbing the beads.
- 7) Resuspend the beads with ice-cold Lysis Buffer (+).
- 8) Centrifuge the tube at 2,000 x g for 1 minute, and carefully discard the supernatant.
- 9) Add 500  $\mu$ L of cell lysate (precleared sample of step 4), then incubate with gentle agitation for 3 hours at 4°C.
- 10) Centrifuge the tube at 2,000 x g for 1 minute, and carefully discard the supernatant using a pipettor without disturbing the beads.
- 11) Resuspend the beads with Wash Buffer (+).
- 12) Centrifuge the tube at 2,000 x g for 1 minute, and carefully discard the supernatant.
- 13) Repeat steps 11-12) 3 times.
- 14) Add 400  $\mu$ L of Master mix solution (Solution I: Solution II = 10  $\mu$ L: 390  $\mu$ L). Vortex for 10 seconds.
- 15) Add 250  $\mu$ L of Solution III. Vortex for 10 seconds.
- 16) Centrifuge the tube at 2,000 x g for 2 minutes.
- 17) Transfer the supernatant to the tube containing 2  $\mu$ L of Solution IV.
- 18) Add 600  $\mu$ L of ice-cold 2-propanol and place at -20°C for 20 minutes. Centrifuge the tube at 12,000 x g for 10 minutes.
- 19) Wash the pellet twice with 0.5 mL of ice-cold 70% Ethanol and dry up the pellet for 5-15 minutes.
- 20) Dissolve the pellets in nuclease-free water.
- 21) RNA was quantified with NanoDrop (Thermo Fisher Scientific Inc.) and the RNA quality was analyzed with Bioanalyzer (Agilent Technologies, Inc.).

(Positive control for RNP Immunoprecipitation; Jurkat)

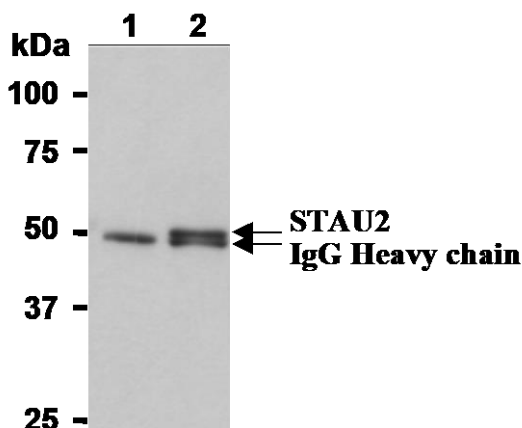


**Western blotting analysis of STAU2 expression in 293T (1), HeLa (2), K562 (3), Jurkat (4) and SK-SY-5Y (5) using RN013P.**

### SDS-PAGE & Western blotting

- 1) Wash  $1 \times 10^7$  cells 3 times with PBS and suspend them in 1 mL of Laemmli's sample buffer.
- 2) Boil the samples for 2 minutes and centrifuge. Load 10  $\mu$ L of the sample per lane in a 1 mm thick SDS-polyacrylamide gel for electrophoresis.
- 3) Blot the protein to a polyvinylidene difluoride (PVDF) membrane at 1 mA/cm<sup>2</sup> for 1 hour in a semi-dry transfer system (Transfer Buffer: 25 mM Tris, 190 mM glycine, 20% methanol). See the manufacture's manual for precise transfer procedure.
- 4) To reduce nonspecific binding, soak the membrane in 10% skimmed milk (in PBS, pH 7.2) for 1 hour at room temperature, or overnight at 4°C.
- 5) Incubate the membrane with primary antibody diluted with 1% skimmed milk (in PBS, pH 7.2) as suggested in the **APPLICATIONS** for 1 hour at room temperature. (The concentration of antibody will depend on the conditions.)
- 6) Wash the membrane with PBS-T [0.05% Tween-20 in PBS] (5 minutes x 3).
- 7) Incubate the membrane with the 1:10,000 Anti-IgG (H+L chain) (Rabbit) pAb-HRP (MBL, code no. 458) diluted with 1% skimmed milk (in PBS, pH 7.2) for 1 hour at room temperature.
- 8) Wash the membrane with PBS-T (5 minutes x 3).
- 9) Wipe excess buffer on the membrane, then incubate it with appropriate chemiluminescence reagent for 1 minute. Remove extra reagent from the membrane by dabbing with paper towel, and seal it in plastic wrap.
- 10) Expose to an X-ray film in a dark room for 1 minute. Develop the film as usual. The condition for exposure and development may vary.

(Positive controls for Western blotting; K562, 293T, HeLa, Jurkat, SK-SY-5Y)



**Immunoprecipitation of STAU2 from Jurkat with normal rabbit IgG (1) or RN013P (2). After immunoprecipitated with the antibody, immunocomplex was resolved on SDS-PAGE and immunoblotted with RN013P.**

### Immunoprecipitation

- 1) Wash  $1 \times 10^7$  cells twice with PBS and resuspend them with 1 mL of ice-cold Lysis buffer (RIP-Assay Kit) containing appropriate protease inhibitors, then sonicate briefly (up to 10 seconds).
- 2) Centrifuge the tube at 12,000 x g for 5 minutes at 4°C and transfer the supernatant to another tube.
- 3) Add 20  $\mu$ L of 50% protein A agarose beads slurry resuspended in Lysis Buffer into the supernatant. Incubate it at 4°C with rotating for 1 hour.
- 4) Centrifuge the tube at 2,000 x g for 1 minute at 4°C and transfer the supernatant to another tube (precleared sample).
- 5) Mix both 20  $\mu$ L of 50% protein A agarose beads slurry resuspended in nuclease-free PBS and Normal Rabbit IgG (RIP-Assay Kit) or Anti-STAU2 (Human) pAb (MBL, code no. RN013P) at the amount of suggested in the **APPLICATIONS**, and then add 1 mL of Wash buffer into each tube. Incubate with gently agitation for 1 hour at 4°C.
- 6) Centrifuge the tube at 2,000 x g for 1 minute, and carefully discard the supernatant using a pipettor without disturbing the beads.
- 7) Resuspend the beads with ice-cold Lysis Buffer.
- 8) Centrifuge the tube at 2,000 x g for 1 minute, and carefully discard the supernatant.
- 9) Add 250  $\mu$ L of cell lysate (precleared sample of step 4), then incubate with gentle agitation for 1 hour at 4°C.
- 10) Centrifuge the tube at 2,000 x g for 1 minute, and carefully discard the supernatant using a pipettor without disturbing the beads.
- 11) Resuspend the beads with Wash Buffer.
- 12) Centrifuge the tube at 2,000 x g for 1 minute, and carefully discard the supernatant.
- 13) Repeat steps 11-12) 3 times.
- 14) Resuspend the beads in 20  $\mu$ L of Laemmli's sample buffer, boil for 3-5 minutes, and centrifuge for 5 minutes. Use 20  $\mu$ L/lane for the SDS-PAGE analysis. (See **SDS-PAGE & Western blotting**.)

(Positive control for Immunoprecipitation; Jurkat)