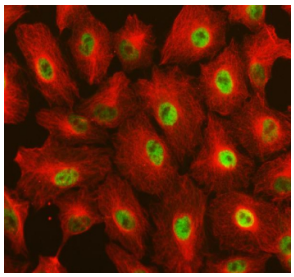
RAI1 Antibody / Retinoic acid-induced protein 1 (FY12667)

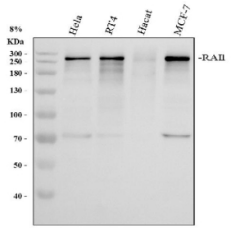
Catalog No.	Formulation	Size
FY12667	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

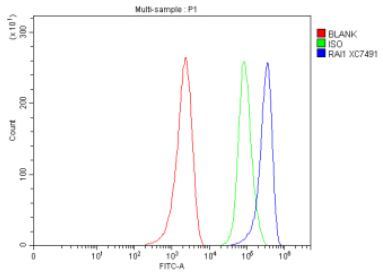
Availability	1-2 days
Species Reactivity	Human
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q7Z5J4
Applications	Western Blot : 0.25-0.5ug/ml Immunocytochemistry/Immunofluorescence : 5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This RAI1 antibody is available for research use only.



Immunofluorescent staining of RAI1 using anti-RAI1 antibody (green) and anti-Beta Tubulin antibody (red). RAI1 was detected in an immunocytochemical section of cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 5 ug/ml rabbit anti-RAI1 antibody and mouse anti-Beta Tubulin antibody overnight at 4oC. DyLight 488 Conjugated Goat Anti-Rabbit IgG and Cy3 Conjugated Goat Anti-Mouse IgG were used as secondary antibody at 1:500 dilution and incubated for 30 minutes at 37oC. Visualize using a fluorescence microscope and filter sets appropriate for the label used.



Western blot analysis of RAI1 using anti-RAI1 antibody. Electrophoresis was performed on a 8% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human Hela whole cell lysates, Lane 2: human RT4 whole cell lysates, Lane 3: human Hacat whole cell lysates, Lane 4: human MCF-7 whole cell 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-RAI1 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. A predominant band is observed at ~250-260 kDa, which is widely reported for endogenous RAI1 despite the calculated ~203 kDa, consistent with known anomalous migration of this large nuclear regulator.



Flow Cytometry analysis of MCF-7 cells using anti-RAI1 antibody. Overlay histogram showing MCF-7 cells stained with (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-RAI1 antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.

Description

RAI1 antibody detects Retinoic acid-induced protein 1, a transcriptional regulator implicated in neurodevelopment, circadian rhythm control, and chromatin remodeling. RAI1 functions as a dosage-sensitive transcription factor that modulates neuronal gene expression and behavior. The RAI1 antibody is widely used in genetics, neurobiology, and developmental studies to explore transcriptional regulation and syndromic neurological disorders.

RAI1 is encoded by the RAI1 gene located on human chromosome 17p11.2. The protein is approximately 1906 amino acids in length and localizes predominantly to the nucleus, where it binds DNA and interacts with chromatin-modifying complexes. RAI1 acts as a transcriptional coactivator that influences gene networks involved in neuronal differentiation, circadian rhythm, and energy balance. Its expression is tightly controlled during embryonic development and in brain regions such as the hypothalamus and cortex.

The RAI1 antibody detects a 220 kilodalton band by western blot and reveals nuclear staining under immunofluorescence microscopy. Haploinsufficiency or deletion of RAI1 causes Smith-Magenis syndrome, characterized by developmental delay, sleep disturbances, and behavioral abnormalities. Conversely, duplication of the RAI1 region is associated with Potocki-Lupski syndrome, illustrating the gene's sensitivity to dosage imbalance.

RAI1 influences circadian rhythm through regulation of CLOCK and BMAL1 targets and modulates neuroplasticity and metabolic pathways. It may also interact with histone-modifying enzymes to alter chromatin accessibility. Dysregulation of RAI1 expression or mutation contributes to neuropsychiatric disorders including autism spectrum disorder, schizophrenia, and intellectual disability.

Because RAI1 governs transcriptional networks essential for neuronal function and rhythmic homeostasis, it serves as a vital link between chromatin dynamics and brain physiology. NSJ Bioreagents provides a validated RAI1 antibody optimized for its applications, supporting research into neurodevelopment, transcriptional control, and genomic disorders.

Application Notes

Optimal dilution of the RAI1 antibody should be determined by the researcher.

Immunogen

E.coli-derived human RAI1 recombinant protein (Position: Q14-P1906) was used as the immunogen for the RAI1 antibody.

Storage

After reconstitution, the RAI1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.