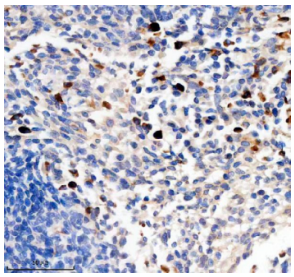
TCIRG1 Antibody / T-cell immune regulator 1 (FY12591)

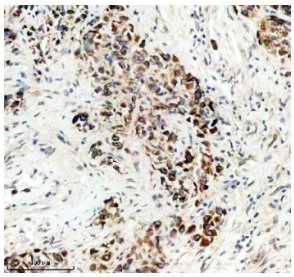
Catalog No.	Formulation	Size
FY12591	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

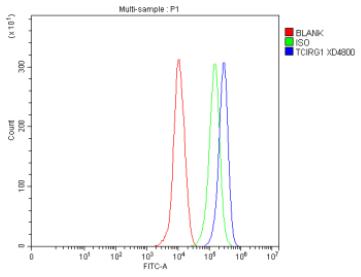
Availability	1-2 days
Species Reactivity	Human
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q13488
Applications	Immunohistochemistry: 2-5ug/ml Flow cytometry: 1-3ug/million cells ELISA: 0.1-0.5ug/ml
Limitations	This TCIRG1 antibody is available for research use only.



Immunohistochemical staining of TCIRG1 using anti-TCIRG1 antibody. TCIRG1 was detected in a paraffin-embedded section of human tonsil tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-TCIRG1 antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate. Tonsil section shows scattered cytoplasmic/vesicular staining in macrophages and histiocytes within the germinal centers, consistent with TCIRG1 expression in antigen-presenting phagocytes.



Immunohistochemical staining of TCIRG1 using anti-TCIRG1 antibody. TCIRG1 was detected in a paraffin-embedded section of human lung cancer tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-TCIRG1 antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate. Lung carcinoma section shows granular cytoplasmic and membranous staining in tumor-associated macrophages and scattered carcinoma cells, consistent with localization of the vacuolar-ATPase a3 subunit to acidified vesicular and plasma membrane regions.



Flow Cytometry analysis of THP-1 cells using anti-TCIRG1 antibody. Overlay histogram showing THP-1 cells stained with (Blue line). The cells were fixed with 4% paraformaldehyde and blocked with 10% normal goat serum. And then incubated with rabbit anti-TCIRG1 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

TCIRG1 antibody detects T-cell immune regulator 1, a subunit of the vacuolar-type H+-ATPase (V-ATPase) proton pump that acidifies intracellular compartments and bone resorption lacunae. TCIRG1 is essential for osteoclast function, lysosomal acidification, and immune regulation. The TCIRG1 antibody is widely used in osteoclast biology, immunology, and cell physiology research to study proton transport, lysosomal function, and bone metabolism.

TCIRG1 is encoded by the TCIRG1 gene on human chromosome 11q13.2. The protein is approximately 830 amino acids long and represents the a3 isoform of the V-ATPase a subunit. It localizes to the ruffled border membrane of osteoclasts, where it pumps protons into the bone resorption lacuna, dissolving mineralized matrix and enabling bone remodeling. In other cell types, TCIRG1 contributes to lysosomal acidification and vesicle trafficking.

The TCIRG1 antibody detects a 100 kilodalton band by western blot and shows membrane and vesicular staining under immunofluorescence microscopy. Mutations in TCIRG1 cause autosomal recessive osteopetrosis, a disorder characterized by defective bone resorption, increased bone density, and bone marrow failure. In immune cells, TCIRG1 expression regulates antigen processing and presentation by acidifying endolysosomal compartments.

Beyond bone biology, TCIRG1 plays roles in metabolic adaptation and intracellular pH regulation. It interacts with other V-ATPase subunits to control organelle acidification in neurons, hepatocytes, and epithelial cells. Dysregulation of TCIRG1 or V-ATPase activity contributes to cancer cell invasion and multidrug resistance due to altered extracellular acidification.

As a vital component of the proton pump machinery, TCIRG1 links acid-base regulation with immune and skeletal homeostasis. NSJ Bioreagents provides a validated TCIRG1 antibody optimized for western blot, immunohistochemistry, and bone tissue studies, supporting detailed research into osteoclast function, lysosomal biology, and metabolic regulation.

Application Notes

Optimal dilution of the TCIRG1 antibody should be determined by the researcher.

Immunogen

E.coli-derived human TCIRG1 recombinant protein (Position: Q48-D680) was used as the immunogen for the TCIRG1 antibody.

Storage

After reconstitution, the TCIRG1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

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