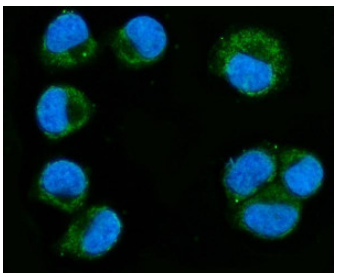
# MIRO1 Antibody / RHOT1 Polyclonal Antibody (FY13689)

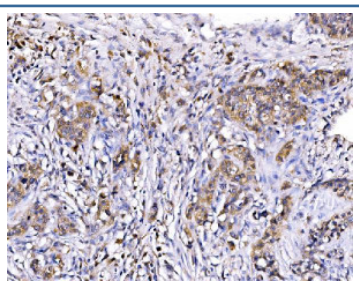
| Catalog No. | Formulation | Size |
|---|---|---|
| FY13689 | 0.5mg/ml if reconstituted with 0.2ml sterile DI water | 100 ug |

**Bulk quote request**

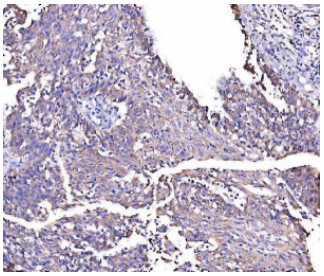
| | |
|---|---|
| **Species Reactivity** | Human, Mouse, Rat |
| **Format** | Antigen affinity purified |
| **Host** | Rabbit |
| **Clonality** | Polyclonal (rabbit origin) |
| **Isotype** | Rabbit IgG |
| **Purity** | Antigen affinity purified |
| **Buffer** | Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4. |
| **UniProt** | Q8IXI2 |
| **Applications** | Western blot: 0.25-5ug/ml<br>Immunohistochemistry (FFPE): 2-5ug/ml<br>Immunofluorescence: 5ug/ml<br>Direct ELISA: 0.1-0.5ug/ml |
| **Limitations** | This MIRO1 Antibody / RHOT1 Polyclonal Antibody is available for research use only. |



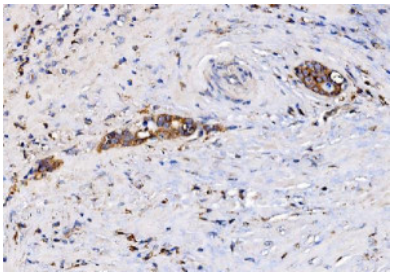
MIRO1 Antibody IF Staining of Human T47D Cells. Immunofluorescence analysis of human T47D cells using RHOT1 Polyclonal Antibody at 5 ug/ml. Green fluorescence demonstrates predominantly cytoplasmic immunoreactivity with a punctate and granular distribution, consistent with the mitochondrial association of MIRO1. DAPI counterstaining identifies nuclei in blue. Enzyme-mediated antigen retrieval was performed for 15 minutes, followed by overnight primary antibody incubation at 4oC and detection with a DyLight 488-conjugated secondary antibody.



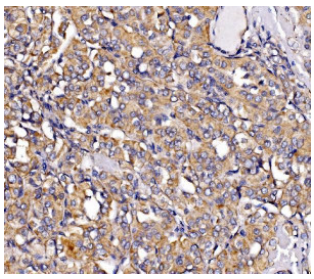
MIRO1 Antibody IHC Staining of Human Lung Cancer Tissue. Immunohistochemical analysis of FFPE human lung cancer tissue using RHOT1 Polyclonal Antibody at 2 ug/ml. Brown DAB staining is visible in tumor cells forming glandular structures, with cytoplasmic immunoreactivity and additional staining in portions of the surrounding tissue. Heat-induced epitope retrieval was performed using EDTA buffer at pH 8, followed by overnight primary antibody incubation at 4oC.



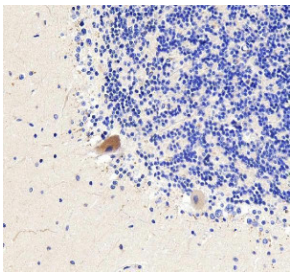
MIRO1 Antibody IHC Staining of Human Laryngeal Squamous Cell Carcinoma Tissue. Immunohistochemical analysis of FFPE human laryngeal squamous cell carcinoma tissue using RHOT1 Polyclonal Antibody at 2 ug/ml. Brown DAB staining is distributed throughout the tumor cell population, with predominantly cytoplasmic immunoreactivity against the blue hematoxylin counterstain. Heat-induced epitope retrieval was performed using EDTA buffer at pH 8, followed by overnight primary antibody incubation at 4oC.



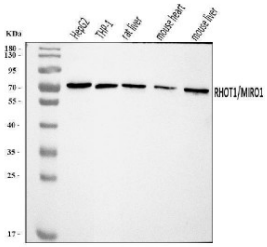
MIRO1 Antibody IHC Staining of Human Gallbladder Adenosquamous Carcinoma Tissue. Immunohistochemical analysis of FFPE human gallbladder adenosquamous carcinoma tissue using RHOT1 Polyclonal Antibody at 2 ug/ml. Brown DAB staining is visible in clusters of tumor cells, with cytoplasmic immunoreactivity and additional staining in scattered cells throughout the surrounding tissue. Heat-induced epitope retrieval was performed using EDTA buffer at pH 8, followed by overnight primary antibody incubation at 4oC.



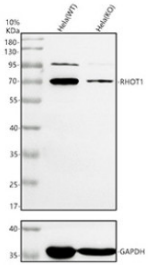
MIRO1 Antibody IHC Staining of Human Thyroid Papillary Carcinoma Tissue. Immunohistochemical analysis of FFPE human thyroid papillary carcinoma tissue using RHOT1 Polyclonal Antibody at 2 ug/ml. Brown DAB staining is prominent in tumor cells, with predominantly granular cytoplasmic immunoreactivity and variable peripheral cellular staining against the blue hematoxylin counterstain. Heat-induced epitope retrieval was performed using EDTA buffer at pH 8, followed by overnight primary antibody incubation at 4oC.



MIRO1 Antibody IHC Staining of Human Cerebellum Tissue. Immunohistochemical analysis of FFPE human cerebellum tissue using RHOT1 Polyclonal Antibody at 2 ug/ml. Brown DAB staining is visible in a large neuronal cell body near the Purkinje cell layer, with predominantly cytoplasmic immunoreactivity against the blue hematoxylin counterstain. Heat-induced epitope retrieval was performed using EDTA buffer at pH 8, followed by overnight primary antibody incubation at 4oC.




MIRO1 Antibody Western Blot Analysis of HepG2, THP-1, Rat Liver, Mouse Heart and Mouse Liver Lysates. Western blot analysis using RHOT1 Polyclonal Antibody at 0.25 ug/ml. Lane 1: human HepG2 cells; lane 2: human THP-1 cells; lane 3: rat liver; lane 4: mouse heart; lane 5: mouse liver. Each lane contains 30 ug of total protein under reducing conditions. Immunoreactive bands are detected at approximately 71 kDa across all five samples, consistent with the calculated molecular weight of MIRO1/RHOT1 at approximately 70.8 kDa.




MIRO1 Antibody Western Blot Validation in HeLa Wild-Type and RHOT1 Knockout Cells. Western blot analysis of human HeLa wild-type (WT, lane 1) and RHOT1 knockout (KO, lane 2) whole-cell lysates using RHOT1 Polyclonal Antibody at 0.5 ug/ml. Each lane contains 30 ug of total protein under reducing conditions. An immunoreactive band at approximately 71 kDa is detected in both samples, with reduced signal in the KO lysate. The observed molecular weight is consistent with the calculated size of approximately 70.8 kDa. GAPDH serves as the loading control.

## Description

MIRO1 Antibody / RHOT1 Polyclonal Antibody targets mitochondrial Rho GTPase 1 (MIRO1), an atypical Rho family GTPase encoded by the RHOT1 gene. MIRO1 is anchored to the outer mitochondrial membrane and plays an important role in mitochondrial transport, positioning, and quality control. Unlike conventional Rho GTPases involved primarily in actin cytoskeleton regulation, MIRO1 contains two GTPase domains separated by calcium-binding EF-hand motifs. This structural arrangement allows the protein to integrate nucleotide-dependent signaling with intracellular calcium concentrations, helping coordinate mitochondrial movement with changing cellular requirements.

MIRO1 participates in the transport of mitochondria along microtubules through interactions with TRAK adaptor proteins and kinesin motor complexes. These interactions are particularly important in neurons, where mitochondria must be distributed over considerable distances to support localized energy production and calcium buffering. Changes in intracellular calcium can influence MIRO1-associated transport complexes, contributing to the regulation of mitochondrial movement near sites of increased cellular activity. MIRO1 also participates in mitochondrial positioning in other cell types, linking organelle distribution to cytoskeletal organization and metabolic demands.

Beyond mitochondrial trafficking, MIRO1 is involved in mitochondrial quality control and the removal of damaged organelles through mitophagy. Following mitochondrial depolarization, the PINK1-Parkin signaling pathway promotes the ubiquitination and degradation of several outer mitochondrial membrane proteins, including MIRO1. Removal of MIRO1 from damaged mitochondria contributes to the arrest of mitochondrial movement, facilitating their isolation and subsequent clearance. Disruption of these processes has been investigated in neurodegenerative disorders, particularly Parkinson's disease, where impaired mitochondrial transport and quality control may contribute to neuronal dysfunction.

MIRO1 has also been implicated in mitochondrial dynamics, organelle communication, and the regulation of cellular responses to metabolic stress. Its interactions with motor adaptors and calcium-dependent signaling mechanisms place it at an important intersection between mitochondrial distribution and cellular homeostasis. Research using MIRO1 Antibody can help characterize RHOT1 expression and distribution in relation to mitochondrial trafficking, calcium-dependent transport regulation, and the molecular mechanisms governing mitochondrial quality control.

Explore our selection of Cell Biology Antibodies for investigating mitochondrial transport, organelle positioning, and cellular mechanisms of mitochondrial quality control.

## Application Notes

Optimal dilution of the MIRO1 Antibody / RHOT1 Polyclonal Antibody should be determined by the researcher.

## Immunogen

E. Coli-derived human mitochondrial Rho GTPase 1 recombinant protein (amino acids Q63-A596) was used as the immunogen for the MIRO1 Antibody.

## Storage

After reconstitution, the MIRO1 Antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

## Alternate Names

ARHT1 antibody, FLJ11040 antibody, Rac-GTP-binding protein-like protein antibody, hMiro-1 antibody, Ras homolog family member T1 antibody, Ras homolog gene family member T1 antibody, Mitochondrial Rho GTPase 1 antibody, Mitochondrial Rho (MIRO) GTPase 1 antibody, Mitochondrial Rho 1 antibody, MIRO-1 antibody

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