abcam

# ab314168

# Anti-Dynamin 2 antibody [1D8]

Recombinant

## Key facts

| | |
|---|---|
| **Isotype** | IgG |
| **Host species** | Rabbit |
| **Storage buffer** | pH: 7.4 Preservative: 0.02% Sodium azide Constituents: PBS, 50% Glycerol (glycerin, glycerine), 0.88% Sodium chloride |
| **Form** | Liquid |
| **Clonality** | Monoclonal |
| **Immunogen** | Synthetic Peptide within Human DNM2. Database link P50570 |
| **Clone number** | 1D8 |
| **Purification technique** | Affinity purification |
| **Concentration** | 1.2 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

## Reactivity data

## WB

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/500 - 1/5000 |
| **Notes** | - |

| | |
|---|---|
| **Species** | Rat |

| | |
|---|---|
| **Dilution info** | 1/500 - 1/5000 |
| **Notes** | - |

## ICC/IF

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/20 - 1/200 |
| **Notes** | - |

### Expected

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | Use at an assay dependent concentration. |
| **Notes** | - |

## Flow Cyt

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | 1/20 - 1/200 |
| **Notes** | - |

### Expected

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | Use at an assay dependent concentration. |
| **Notes** | - |

# Target data

See full target information DNM2

**Function** Catalyzes the hydrolysis of GTP and utilizes this energy to mediate vesicle scission at plasma membrane during endocytosis and filament remodeling at many actin structures during organization of the actin cytoskeleton (PubMed:15731758,

PubMed:19605363, PubMed:19623537, PubMed:33713620, PubMed:34744632). Plays an important role in vesicular trafficking processes, namely clathrin-mediated endocytosis (CME), exocytic and clathrin-coated vesicle from the trans-Golgi network, and PDGF stimulated macropinocytosis (PubMed:15731758, PubMed:19623537, PubMed:33713620). During vesicular trafficking process, associates to the membrane, through lipid binding, and self-assembles into ring-like structure through oligomerization to form a helical polymer around the vesicle membrane and leading to vesicle scission (PubMed:17636067, PubMed:34744632, PubMed:36445308). Plays a role in organization of the actin cytoskeleton by mediating arrangement of stress fibers and actin bundles in podocytes (By similarity). During organization of the actin cytoskeleton, self-assembles into ring-like structure that directly bundles actin filaments to form typical membrane tubules decorated with dynamin spiral polymers (By similarity). Self-assembly increases GTPase activity and the GTP hydrolysis causes the rapid depolymerization of dynamin spiral polymers, and results in dispersion of actin bundles (By similarity). Remodels, through its interaction with CTTN, bundled actin filaments in a GTPase-dependent manner and plays a role in orchestrating the global actomyosin cytoskeleton (PubMed:19605363). The interaction with CTTN stabilizes the interaction of DNM2 and actin filaments and stimulates the intrinsic GTPase activity that results in actin filament-barbed ends and increases the sensitivity of filaments in bundles to the actin depolymerizing factor, CFL1 (By similarity). Plays a role in the autophagy process, by participating in the formation of ATG9A vesicles destined for the autophagosomes through its interaction with SNX18 (PubMed:29437695), by mediating recycling endosome scission leading to autophagosome release through MAP1LC3B interaction (PubMed:29437695, PubMed:32315611). Also regulates maturation of apoptotic cell corpse-containing phagosomes by recruiting PIK3C3 to the phagosome membrane (By similarity). Also plays a role in cytokinesis (By similarity). May participate in centrosome cohesion through its interaction with TUBG1 (By similarity). Plays a role in the regulation of neuron morphology, axon growth and formation of neuronal growth cones (By similarity). Involved in membrane tubulation (PubMed:24135484).

## Storage

| | |
|---|---|
| **Shipped at conditions** | Blue Ice |
| **Appropriate short-term storage duration** | 1-2 weeks |
| **Appropriate short-term storage conditions** | +4°C |
| **Appropriate long-term storage conditions** | -20°C |
| **Aliquoting information** | Upon delivery aliquot |
| **Storage information** | Avoid freeze / thaw cycle |

## Notes

**What are the advantages of a recombinant monoclonal antibody?**
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

## Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

| | |
|---|---|
| **Activity summary** | Dynamin 2 also known as dynamin protein or DNM2 is a GTPase enzyme with a mass of approximately 100 kDa. This protein is mainly found in human cells such as fibroblasts epithelial cells and neurons. It functions by facilitating membrane fission events which are important for endocytosis and other vesicular trafficking processes. The flexible structure of dynamin-2 allows it to act as a molecular motor generating mechanical force upon GTP hydrolysis to constrict and sever membranes. |
| **Biological function summary** | Dynamin 2 participates in cellular processes like receptor-mediated endocytosis and are involved in actin and microtubule dynamics. It associates with other proteins to form complexes that stabilize its function and activity within the cell. By enabling endocytosis dynamin-2 plays a role in nutrient uptake signaling and membrane recycling ensuring proper cellular function and homeostasis. |
| **Pathways** | Dynamin 2 is integral to the clathrin-mediated endocytic pathway and the actin cytoskeleton regulation pathway. In the clathrin-mediated pathway it interacts with clathrin and adaptin proteins to facilitate the budding and release of clathrin-coated vesicles. Within the actin cytoskeleton pathway dynamin-2 is related to actin-binding proteins which it assists in remodeling the cytoskeleton structure supporting cell shape and motility. |
| **Associated diseases and disorders** | Mutations in dynamin 2 have been linked to Charcot-Marie-Tooth disease and centronuclear myopathy. These conditions affect peripheral nerves and skeletal muscles respectively and stem from dysfunction in the cellular trafficking and division processes mediated by dynamin-2. The pathology of these diseases involves connections with other proteins such as myotubularin and other muscular-associated proteins indicating the significance of dynamin-2 in maintaining normal cellular functions and its role in neuromuscular disorders. |

## Product promise

**Tested**

We have tested this species and application combination and it works. It is covered by our product promise.

**Expected**

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

**Predicted**

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

**Not recommended**

We do not recommend this combination. It is not covered by our product promise.

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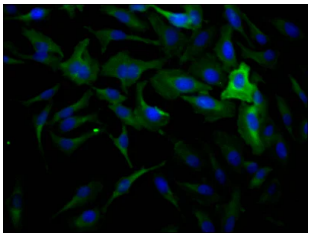
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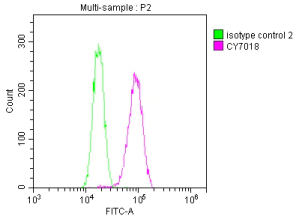
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## 2 product images



### Immunocytochemistry/ Immunofluorescence - Anti-Dynamin 2 antibody [1D8] (ab314168)

Immunofluorescence staining of HeLa (Human epithelial cell line from cervix adenocarcinoma) cells with ab314168 at 1:50, counter-stained with DAPI. The cells were fixed in 4% formaldehyde, permeated by 0.2% TritonX-100, and blocked in 10% normal Goat Serum. The cells were then incubated with the antibody overnight at 4°C. Nuclear DNA was labeled in blue with DAPI. The secondary antibody was FITC-conjugated Goat Anti-Rabbit IgG (H+L).




### Flow Cytometry - Anti-Dynamin 2 antibody [1D8] (ab314168)

Dynamin 2 Flow Cytometry staining of HeLa cells using rabbit Anti-Dynamin 2 antibody

Overlay histogram showing HeLa (Human epithelial cell line from cervix adenocarcinoma) cells stained with ab314168 (pink line) at 1:50. The cells were fixed with 70% Ethylalcohol (18h) and then incubated in 10% normal goat serum to block non-specific protein-protein interactions followed by the antibody (1µg/1x10E6 cells) for 1 h at 4°C.The secondary antibody used was FITC-conjugated goat anti-rabbit IgG (H+L) at 1/200 dilution for 30min at 4°C. Control antibody (green line) was Rabbit IgG (1µg/1x10E6 cells) used under the same conditions. Acquisition of >10,000 events was performed.

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