

## Alexa Fluor® 594 anti- $\alpha$ Smooth Muscle Actin Antibody

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Catalog# / Size</b>   | 614861 / 25 $\mu$ g                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Clone</b>             | 1A4                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Regulatory Status</b> | RUO                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Other Names</b>       | Actin, aortic smooth muscle ( $\alpha$ SMA), alpha 2 actin (ACTA2), alpha-cardiac actin, growth-inhibiting gene 46, cell growth-inhibiting gene 46 protein                                                                                                                                                                                                                                                                     |
| <b>Isotype</b>           | Mouse IgG2a, $\kappa$                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Description</b>       | Cytoplasmic actins, which belong to the microfilament system of cytoskeleton proteins, are some of the most conserved eukaryotic proteins expressed in mammals. $\alpha$ -smooth muscle actin is widely expressed in contractile cells, most notably the mural cells that line arteries and arterioles. Overexpression of $\alpha$ -smooth muscle actin is a hallmark of fibrosis, a thickening or scarring of damaged tissue. |

### Product Details

|                               |                                                                                                                                             |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Verified Reactivity</b>    | Human, Mouse                                                                                                                                |
| <b>Antibody Type</b>          | Monoclonal                                                                                                                                  |
| <b>Host Species</b>           | Mouse                                                                                                                                       |
| <b>Immunogen</b>              | N-terminal synthetic peptide of alpha-smooth muscle actin coupled to keyhole limpet haemocyanin (KLH).                                      |
| <b>Formulation</b>            | Phosphate-buffered solution, pH 7.2, containing 0.09% sodium azide                                                                          |
| <b>Preparation</b>            | The antibody was purified by affinity chromatography and conjugated with Alexa Fluor® 594 under optimal conditions.                         |
| <b>Concentration</b>          | 0.5 mg/mL                                                                                                                                   |
| <b>Storage &amp; Handling</b> | The antibody solution should be stored undiluted between 2°C and 8°C, and protected from prolonged exposure to light. <b>Do not freeze.</b> |
| <b>Application</b>            | <a href="#">IHC-P - Quality tested</a><br><a href="#">ICC - Verified</a>                                                                    |

**Recommended Usage** Each lot of this antibody is quality control tested by formalin-fixed paraffin-embedded immunohistochemical staining. For immunohistochemistry, a concentration range of 1.0 - 10.0  $\mu$ g/mL is suggested. For immunocytochemistry, a concentration range of 1.0 - 10.0  $\mu$ g/mL is recommended. It is recommended that the reagent be titrated for optimal performance for each application.

\* Alexa Fluor® 594 has an excitation maximum of 590 nm, and a maximum emission of 617 nm.

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**Additional Product Notes** For use in immunohistochemistry on formalin-fixed paraffin-embedded tissue (IHC-P), it is recommended to perform antigen retrieval using either Citrate Buffer, 10X (Cat. No. 420902) or Tris-EDTA pH 9.0 Antigen Retrieval Buffer (10X) (Cat. No. 422704).

For use in immunocytochemistry (ICC), it is recommended to fix/permeabilize with any of the following:

- Fixation buffer (Cat. No. 420801) with 0.5 % Triton X-100
- 100% ice-cold methanol only
- Fixation buffer (Cat. No. 420801) with 100% ice-cold methanol

### Antigen Details

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Structure</b>          | $\alpha$ smooth muscle actin is a 377 amino acid protein with a predicted molecular weight of 42 kD.                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Distribution</b>       | Cytoplasmic, cytoskeleton                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Function</b>           | Cell motility                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Interaction</b>        | $\alpha$ smooth muscle actins bind to myosins to produce motive force                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Cell Type</b>          | Mesenchymal Stem Cells, Monocytes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Biology Area</b>       | Cell Biology, Cell Motility/Cytoskeleton/Structure, Cell Structure, Neuroscience, Neuroscience Cell Markers                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Molecular Family</b>   | Microfilaments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Antigen References</b> | <ol style="list-style-type: none"> <li>1. Brennan PA, <i>et al.</i> 2000. <i>J Oral Pathol Med.</i> 29:279-83.</li> <li>2. Rizeq MN, <i>et al.</i> 1994. <i>Hum Pathol.</i> 25:671-7.</li> <li>3. Schmitt-Graff A, <i>et al.</i> 1991. <i>Am J Pathol.</i> 138::1233-42</li> <li>4. Roholl PJM, <i>et al.</i> 1990. <i>Hum Pathol.</i> 21:1269-74.</li> <li>5. Alberts B, <i>et al.</i> 1989. <i>Eds Molecular biology of the cell.</i> 2:613.</li> <li>6. Skalli O, <i>et al.</i> 1986. <i>J Cell Biol.</i> 103:2787-96.</li> </ol> |
| <b>Gene ID</b>            | <a href="#">59</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

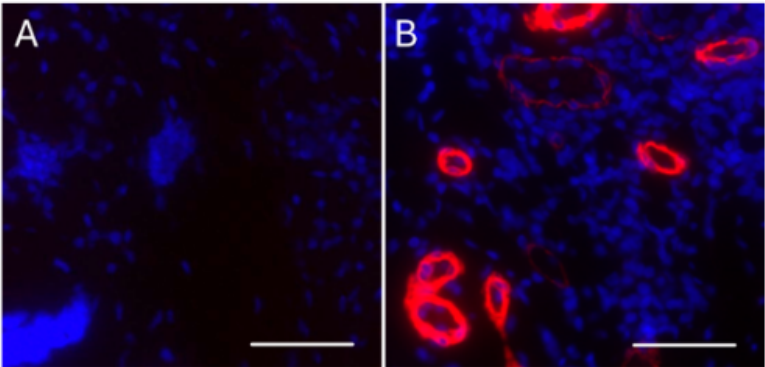
Related Protocols

- [Immunocytochemistry Staining Protocol](#)
- [Immunohistochemistry Protocol for Paraffin-Embedded Sections](#)

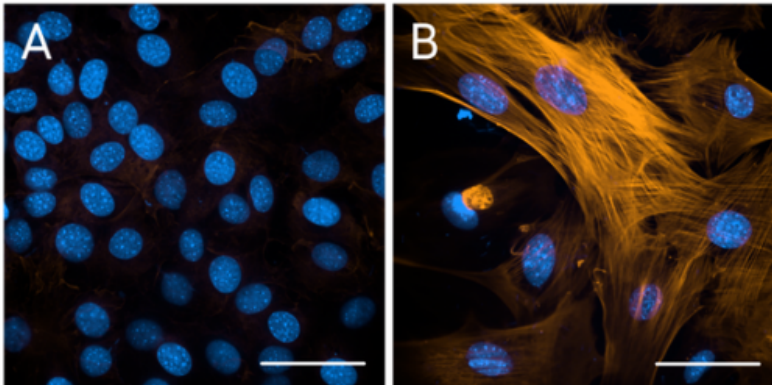
Other Formats

Purified anti- $\alpha$  Smooth Muscle Actin, Alexa Fluor® 488 anti- $\alpha$  Smooth Muscle Actin, Alexa Fluor® 647 anti- $\alpha$  Smooth Muscle Actin, Alexa Fluor® 555 anti- $\alpha$  Smooth Muscle Actin, Alexa Fluor® 594 anti- $\alpha$  Smooth Muscle Actin

Product Data



IHC staining with Alexa Fluor® 594 anti- $\alpha$ -Smooth Muscle Actin (clone 1A4) on formalin-fixed paraffin-embedded human tonsil. Following antigen retrieval using 1X Tris-EDTA pH 9.0 Antigen Retrieval Buffer (Cat. No. 422704), the tissue was incubated with Alexa Fluor® 594 Mouse IgG2a,  $\kappa$  Isotype Control antibody (Cat. No. 400280) (panel A) or Alexa Fluor® 594 anti- $\alpha$ -Smooth Muscle Actin (clone 1A4) (panel B). Images were captured with a 40X objective. Scale: 50  $\mu$ m



HeLa cells (low-expressing cell line, panel A) and aortic vascular smooth muscle cells (high-expressing cell line, panel B) were fixed with 4% PFA Fixation Buffer (Cat. No. 420801) for 10 minutes, permeabilized with 100% ice-cold methanol for 10 minutes, and blocked with 5% FBS for 1 hour at room temperature. Cells were then stained with Alexa Fluor® 594 anti- $\alpha$ -Smooth Muscle Actin (clone 1A4). Nuclei were counterstained with DAPI (Cat. No. 422801). The images were captured on a Revvity Operetta CLS™ High Content Analysis System with a 63X objective and merged. Scale bar: 50  $\mu$ m

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