CREATIVE BIOMART®
Assay Kit

F-actin Visualization Biochem Fluorometric Kit

Product Information

Cat.No.

Kit-0332

Product Overview

Conventional actins have a relative molecular mass of approximately 43 kDa. Monomeric actin (G-actin) can self-assemble (polymerize) into microfilaments (F-actin), the fundamental unit of the actin cytoskeleton. Actins are highly conserved within the eukaryotic kingdom and exist in higher eukaryotes as multigene families. Isoforms show distinct cellular and sub-cellular expression and localization. It has been demonstrated that different isoforms have subtly different biochemical properties in vitro which supports functional diversity within isotypes in vivo.The actin cytoskeleton is a highly dynamic structure, a property under the tight regulation of more than 150 actin binding proteins (ABPs). It is involved in a large number of cellular processes, including muscle contraction, lamellopodia extrusion, cell locomotion, cytokinesis, intracellular transport and cytoplasmic streaming. The morphology of the actin cytoskeleton changes rapidly in response to a wide variety of internal and external stimuli. For example, figure 1 shows that calpeptin stimulation of serum starved 3T3 cells results in a rapid accumulation of actin stress fibers. This reponse is due to the activation of the small GTPase RhoA. As a further example, many pathogenic bacteria and viruses harness the host actin cytoskeleton for their intracellular spread, resulting in characteristic actin comet tails. Fluorescent phalloidins selectively stain filamentous actin at nanomolar concentrations. They are the reagent of choice for F-actin staining of fixed cells for several reasons:Bind in a stoichiometric ratio of one phalloidin to one actin monomer;Do not bind to monomeric G-actins (unlike many actin antibodies) which results in cleaner filament staining;Binding properties do not change with actins from a wide variety of species;Binding properties do not change between different actin isotypes;Non-specific staining is negligible.

Size

300 assays

Applications

1. Cellular colocalization with actin binding proteins by immunofluorescence.2. Detecting changes

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in actin morphology upon bacterial or viral infections.3. Detecting changes in actin morphology upon activation of small G-protein signal transduction pathways.4. Focal adhesion marker5. Marker for serum starvation of tissue culture cells

Kit Components

Reagent-Quantity -StorageRhodamine Phalloidin: 1 tube, lyophilized, Desiccated at 4°C, Protected from light. Wash Buffer Part: 1 tablet, 4°C; Permeabilization Buffer: 1 bottle, lyophilized, 4°C;Fixative Stock Part: 4 tubes, 1.5 ml each, 4°C;Mounting Medium: 4 tubes, 1.5 ml each, 4°C;Rhodamine Phalloidin Dark Box:1 box, 4°C or room temperature

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