ab112125

CytoPainter F-actin Staining Kit - Green Fluorescence

Instructions for Use

For labelling sub-cellular organelles in tissue sections, cell cultures and cell free experiments using our proprietary green fluorescence probe

This product is for research use only and is not intended for diagnostic use.

Version: 4c Last Updated: 7 July 2020

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1. Introduction

Actin is a globular, roughly 42-kDa protein found in almost all eukaryotic cells. It is also one of the most highly-conserved proteins, differing by no more than 20% in species as diverse as algae and humans. Actin is the monomeric subunit of two types of filaments in cells: microfilaments, one of the three major components of the cytoskeleton, and thin filaments, part of the contractile apparatus in muscle cells. Thus, actin participates in many important cellular processes including muscle contraction, cell motility, cell division and cytokinesis, vesicle and organelle movement, cell signaling, as well as the establishment and maintenance of cell junctions and cell shape.

Abcam CytoPainter imaging kits are a set of fluorescence imaging tools for labeling sub-cellular organelles such as membranes, lysosomes, mitochondria, nuclei, etc. The selective labeling of live cell compartments provides a powerful method for studying cellular events in a spatial and temporal context.

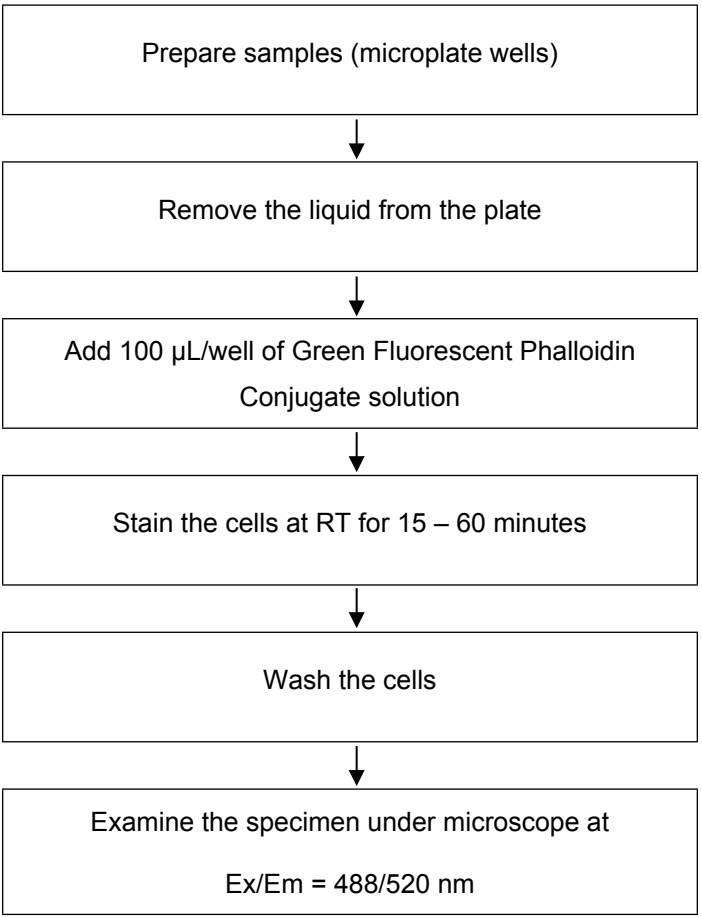
ab112125 is designed to label F-actins in fixed cells with green fluorescence. The kit uses a green fluorescent phalloidin conjugate that selectively binds to F-actins. When used at nanomolar concentrations, phallotoxins are convenient probes for labeling, identifying and quantitating F-actins in formaldehyde-fixed and permeabilized tissue sections, cell cultures or cell-free experiments.

ab112125 provides all the essential components with an optimized staining protocol, which is robust requiring minimal hands-on time.

The phalloidin conjugate has spectral properties similar to those of FITC (Ex/Em = 500/520 nm).

2. Protocol Summary

Summary for One 96-well Plate



Note: Thaw all the kit components to room temperature before starting the experiment.

3. Kit Contents

Components	Amount
Component A: Green Fluorescent Phalloidin Conjugate	50 µL
Component B: Labeling Buffer	50 mL

4. Storage and Handling

Keep at -20°C. Avoid exposure to light.

5. Assay Protocol

Note: This protocol is for one 96 - well plate.

F-ACTIN STAINING ONLY

A. Preparation of 1X Green Fluorescent Phalloidin Conjugate Working Solution

Add 10 µL of Green Fluorescent Phalloidin Conjugate (Component A) to 10 mL of Labeling Buffer (Component B).

Note 1: The unused Green Fluorescent Phalloidin Conjugate stock solution (Component A) should be aliquoted and stored at -20°C. Protect from light.

Note 2: Different cell types might be stained differently. The concentration of Green Fluorescent Phalloidin Conjugate working solution should be prepared accordingly.

B. Staining the Cells

1. Perform formaldehyde fixation. Incubate the cells with 3.0–4.0 % formaldehyde in PBS at room temperature for 10 – 30 minutes.

Note: Avoid any methanol containing fixatives since methanol can disrupt actin during the fixation process. The preferred fixative is methanol-free formaldehyde

2. Rinse the fixed cells 2–3 times in PBS.

3. *Optional:* Add 0.1% Triton X-100 in PBS into fixed cells (from Step B.2) for 3 – 5 minutes to increase permeability. Rinse the cells 2–3 times in PBS.

4. Add 100 µL/well (96-well plate) of 1x Green Fluorescent Phalloidin Conjugate working solution (from Step A) into the fixed cells (from Step B.2 or B.3), and stain the cells at room temperature for 15 – 60 minutes

5. Rinse cells gently with PBS 2 – 3 times to remove excess dye before plate sealing and imaging by using FITC channel.

ANTIBODY AND F-ACTIN COMBINATION STAINING

Note: This protocol is for one 96 - well plate.

A. Preparation of 1X Green Fluorescent Phalloidin Conjugate Solution

Add 10 µL Green Fluorescent Phalloidin Conjugate (Component A) to 10 mL of Labeling Buffer (Component B).

Note 1: The unused Green Fluorescent Phalloidin Conjugate stock solution (Component A) should be aliquoted and stored at -20°C. Protect from light.

Note 2: Different cell types might be stained differently. The concentration of Green Fluorescent Phalloidin Conjugate working solution should be prepared accordingly.

B. Staining the Cells

1. Perform formaldehyde fixation. Incubate the cells with 3.0 – 4.0 % formaldehyde in PBS at room temperature for 10 – 30 minutes.

Note: Avoid any methanol containing fixatives since methanol can disrupt actin during the fixation process. The preferred fixative is methanol-free formaldehyde

2. Rinse the fixed cells 2 – 3 times in PBS.

3. Permeabilize fixed cells with 0.2% Triton X-100 in PBS; incubate for 10 – 30 minutes to increase permeability. Rinse the cells once with PBS.

4. Add 100 µL/well 5% Goat serum and leave for 30 minutes. Aspirate serum but do not rinse.

5. Add 100µl of primary antibody solution with 0.5% BSA in PBS and incubate for 1 hour. Make sure the entire are is covered.

6. Rinse cells 3 times in PBS, each time for 5 minutes. Aspirate PBS.

7. Add 5% Goat serum, incubate for 1 – 2 minutes and aspirate.

8. Add 100 µL/well of secondary antibody solution diluted in 0.5% BSA in PBS buffer and 100 µL/well 1X Green Fluorescent Phalloidin Conjugate (from Step A) working solution and stain the cells at room temperature for 30 – 60 minutes. Keep in the dark.

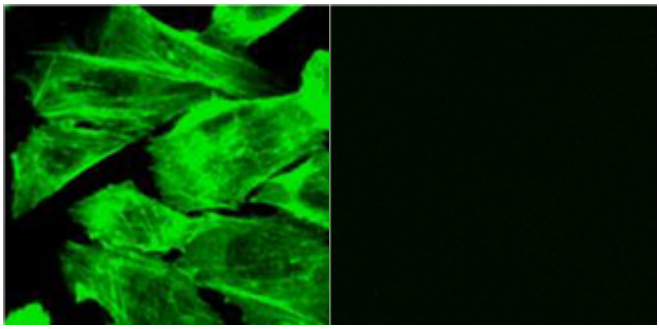
9. If desired, add nuclear dye at relevant dilution in 0.5% BSA in PBS and incubate 10 – 30 minutes. Wash cells 2 – 3 times for 5 minutes in PBS.

   Note: do not use a green fluorescent dye as nuclear dye with this product as it emits in the same channel and the signal

will be masked. We recommend using DRAQ5 (ab108410) as it emits on the far red.

10. Seal plate and examine samples in fluorescence microscope using green (FITC) channel (Ex/Em = 490/525 nm) for F-actin staining. Use the appropriate channels to detect your secondary antibody and nuclear staining

6. Data Analysis



A **B**

Figure 1. Image of CPA cells fixed with formaldehyde and stained with ab112125 in a black 96-well plate.

A: Cells were labeled with 1X Green Fluorescent Phalloidin Conjugate for 30 minutes only.

B: Cells were pre-treated with phalloidin for 10 minutes, then stained with 1X Green Fluorescent Phalloidin Conjugate for 30 minutes.

For further technical questions please do not hesitate to contact us by email (technical@abcam.com) or phone (select "*contact us*" on www.abcam.com for the phone number for your region).

For all technical and commercial enquires please go to:
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