Ablumir
Built Around Immunology

Phalloidin Amine

Catalog No.: Q40001

Basic Information

Catalog No. (Cat.No.)	Q40001
CAS	87876-22-0
Molecular Weight	787.88
Solubility	DMSO
Product Specs	50 mg
Storage	Stored at -20°C for 1 year.
Form	Lyophilized Powder

Product Information

Phalloidin Amine is a bicyclic heptapeptide toxin that binds specifically at the interface between F-actin subunits, locking adjacent subunits together. Its core component is an active phalloidin derivative bearing a free primary amine group, designed for researchers to perform on-demand conjugation with functional moieties such as fluorophores and biotin, addressing the inherent limitation of inflexible labeling options in conventional pre-labeled phalloidin probes.

This product retains the intact bicyclic heptapeptide core structure of native phalloidin. It specifically binds to the interface between F-actin subunits, locks adjacent subunits in place, significantly reduces the dissociation rate of actin monomers, inhibits F-actin depolymerization and its intrinsic ATP hydrolysis activity, and stabilizes the characteristic conformation of actin filaments. With a binding affinity for F-actin far exceeding that for monomeric G-actin, it delivers excellent binding specificity. The reactive amine group installed at the molecular terminus provides a dedicated reaction site for chemical conjugation, allowing researchers to prepare custom-labeled probes tailored to specific experimental requirements.

Compared with traditional pre-conjugated fluorescent phalloidin probes on the market, the core strengths of this product lie in high customization flexibility, compatibility across diverse probe development scenarios, and favorable cost-effectiveness. It overcomes the key drawback of pre-manufactured probes — fixed fluorophore types that cannot be adapted to specialized experimental systems. With robust batch-to-batch consistency, it enables precise labeling of actin polymer structures at working concentrations, and does not disrupt endogenous cellular stress fiber cytoskeletons when applied at low doses.

This product features broad applicability, supporting a wide spectrum of fundamental cell biology research scenarios including fluorescence microscopy imaging, super-resolution microscopy observation, in vitro visualization of individual actin filaments, cytoskeletal mechanism research, drug screening, and apoptosis assessment. It is compatible with fixed cells, tissue sections, and in vitro biochemical assays, serving as a versatile core tool for cytoskeleton research.

The dynamic assembly, distribution, and remodeling of cytoskeletal F-actin underpin the regulation of cell proliferation, migration, polarization, morphogenesis, and signal transduction, and represent key targets for investigating disease mechanisms such as tumor pathology, tissue injury, and cellular immune responses. Accurate visualization and detection of F-actin architecture and distribution is a core technical requirement for cell biology research, pathological mechanism studies, and pharmacological investigation.

Leveraging its reliable microfilament-targeting binding performance and flexible modifiable structure, Phalloidin Amine addresses common limitations of traditional labeling tools: restricted labeling options, suboptimal specificity, and narrow experimental compatibility. Through user-directed conjugation, it is compatible with cutting-edge experimental techniques including multicolor imaging, mass spectrometry detection, click chemistry labeling, and super-resolution imaging. It enables precise qualitative, quantitative, and localization analysis of cytoskeletal microfilament structures, and clearly resolves dynamic actin remodeling events triggered by drug intervention or pathological stimulation.

This product extends beyond the application boundaries of commercial off-the-shelf probes, balancing general utility for basic research and customization capacity for cutting-edge experiments. It effectively enhances experimental efficiency and data accuracy in cytoskeleton research, provides essential tool support for in-depth exploration of cell biology mechanisms, disease pathogenesis research, and early-stage targeted therapeutic development, and carries significant academic research value and broad application prospects.

Product Usage Information

1. Dilute Phalloidin Amine powder to prepare a working solution for labeling.

2. Mix labeling reagents (e.g., fluorophores, biotin) with the labeling working solution to perform the conjugation reaction.

3. Purify the conjugated phalloidin product upon completion of the reaction.

4. Dilute the purified labeled product into a staining working solution, which is ready for cellular F-actin staining.