

Osteogenesis Assay Kit (Alizarin Red S)

Cat. No.: O1506007 | Pack size: 50T | Storage: 2-8°C, protected from light

Specifications

Property	Information
Synonyms	Osteogenesis Assay Kit Alizarin Red S Staining Kit for Osteogenesis Alizarin Red S Staining Kit for Osteogenesis Osteogenesis Assay Kit Osteoblast Staining Kit
Specifications & Purity	for cell culture, for microscopy, BioReagent
Stability And Storage	Store at 2-8°C long term (12 months). Store in the dark.
Storage	Store at 2-8°C, Protected from light
Shipped In	Wet ice This product requires cold chain shipping. Ground and other economy services are not available.
Grade	BioReagent, for Cell culture, for Microscopy

Chemical and Physical Properties

Sensitivity	Light-sensitive
-------------	-----------------

Overview

Osteogenesis Assay Kit (Alizarin Red S), Also known as the Alizarin Red S Staining Kit for Osteogenesis and the Osteogenesis Assay Kit, this kit is a staining tool designed to detect mineralized nodules of osteoblasts. Its working principle is based on the ability of Alizarin Red S to chelate calcium ions (Ca^{2+}), forming an orange-red complex.

In the life process of humans and animals, bone tissue undergoes continuous remodeling. The bone remodeling process includes the resorption (breakdown) of old bone and the formation of new bone. Osteoclasts are responsible for bone resorption, while osteoblasts (OBs) are the primary functional cells for bone formation, tasked with generating new bone. During osteogenic differentiation, the basic biological characteristics of osteoblasts include the synthesis, secretion, mineralization, and maturation of the bone matrix. First, osteoblasts synthesize extracellular matrix components such as type I collagen (collagen-I, COL-I), osteocalcin (OC), and osteopontin (OPN). They then release calcium ions and enzymes like alkaline phosphatase (ALP) through matrix vesicles. Under the action of alkaline phosphatase, calcium ions precipitate onto collagen fibrils, completing the matrix mineralization process and eventually forming bone tissue. Type I collagen begins to be expressed during the proliferation phase and reaches its peak in the matrix synthesis phase. Alkaline phosphatase is an early marker of osteoblast differentiation; it appears in the matrix synthesis phase and peaks in the mineralization phase. Osteocalcin is a marker of osteoblast maturation, typically starting to be expressed in the early mineralization stage and peaking after the mineralized nodules mature. Mineralized nodules are not only a marker of osteoblast maturation but also the main morphological feature of osteoblasts exerting their bone-forming function. Observing the mineralized nodules of osteoblasts is one of the common technical methods for studying osteoblast differentiation.

Alizarin Red S staining is a widely used method in research on osteoblast differentiation and the pathophysiology of osteocytes or bone tissue. Alizarin Red S (abbreviated as ARS), also known as sodium alizarinsulfonate or alizarin carmine, has a CAS number of 130-22-3, a molecular formula of $C_{14}H_7NaO_7S$, and a molecular weight of 342.25. As an anthraquinone derivative, Alizarin Red S can chelate with various metal ions to form stable orange-red or crimson complexes. It serves multiple purposes: it is an excellent metal indicator, a chromogenic agent for the spectrophotometric determination of metal ions, an acid-base indicator, and a reagent for the polarographic determination of metal ions. In histology and histopathology, Alizarin Red S is commonly used to stain or localize calcium deposits in tissues, as it can chelate with calcium salts in calcium carbonate or calcium phosphate to form an orange-red complex.

Component

O1506007	Components	50T	Storage
O1506007A	Fixative	50 mL	2-8°C
O1506007B	Alizarin Red S Staining Solution	50 mL	2-8°C. Store in the dark

Instructions for Use:

1. Sample Preparation

- a. After inducing cell differentiation, remove the culture medium and wash the cells once with PBS.
- b. Fix the cells with fixative for 20 minutes.
- c. Wash the cells three times with PBS.

2. Staining with Alizarin Red S Staining Solution

- a. Add an appropriate amount of Alizarin Red S Staining Solution—just enough to cover the cells evenly—and stain at room temperature for 30 minutes.

Note: Adjust the staining time according to the actual staining effect.

- b. Wash thoroughly with distilled water, then observe and take photos under a microscope.

Precautions:

The optimal staining time for Alizarin Red S Staining Solution is related to the calcium ion content in the sample. Under normal circumstances, the staining time is 30 minutes, but it can be increased or decreased as appropriate based on the actual staining effect.

Contact & Global Offices

Whether you have a technical question, need help with a quotation, or want to inquire about an order, our regional teams are ready to assist. Please contact the office for your region; for general inquiries, the North American office is the corporate primary.

NORTH AMERICAN SALES, SUPPORT & GENERAL INQUIRIES

Aladdin Scientific Corporation

14078 Meridian Parkway, Riverside, CA 92518, USA

Phone: 1-833-552-7181

Sales: sales@aladdinsci.com

Customer Service: custserv@aladdinsci.com

EU SALES, LOGISTICS & LOCALIZED SUPPORT

Aladdin Biochem Deutschland GmbH

Westring 2, 33142 Büren, Germany

Phone: +02951 9383958

Support: support.eu@aladdinsci.com

Limitations & Disclaimer

- For Research Use Only (RUO). Not for use in human or animal diagnostics, therapeutics, or in vivo applications. Not for food, cosmetic, or household use.
- This product is not a CE-marked in vitro diagnostic device under IVDR (EU) 2017/746 and is not an FDA-cleared device under 21 CFR. Use is restricted to verified businesses, institutions, and qualified professionals for research and development purposes.
- Where any kit component is classified as hazardous under CLP (EC) 1272/2008 or OSHA HCS (29 CFR 1910.1200), the product Safety Data Sheet (SDS) takes precedence over this document for handling, storage, and disposal information.
- Performance depends on sample type, sample condition, handling, and operator technique. Users are responsible for validating the kit for their specific application.
- Aladdin product labels, SDS, COA, and approved specifications take precedence over this document. If product formulation, label, SDS, storage conditions, pack size, or quality specifications change, this document would be reviewed and reissued.