Adipogenic Differentiation Small Molecules Kit-9（Solution,Without Indomethacin）

CAT NO.: IK-LIN-9
Storage:-20℃， 6 months

Introduction

This Kit is designed by Solarbio specifically for the induction differentiation of adipocytes. This package features 3 classic basic reagents and Oil Red O, all of which have good biological activity. It aims to build a "one-stop service platform" for customers, saving time, effort and worry. All the products in the library have passed biosafety testing and product quality testing, and have stable and effective performance, little difference between batches, and good biological activity. Moreover, there have been a lot of literatures and multi-party verification, and the quality is reliable.

Oil Red O is a fat soluble azo dye, a strong fat solvent and fat liquor.It can dye the neutral triglycerides, lipids and lipoproteins in tissues and cells specifically. Oil Red O color is obvious and easy to observe, mainly used for fat dyeing. Under the influence of induction medium, stem cells will gradually differentiate into prelipoblasts and adipocytes, and will form lipid droplets of different sizes. The solubility of oil red O in fat is greater than its solubility in the dyeing solution, which gives the fat a red or orange-red color.

Kit Components

Reagent	Size	Storage
Reagent 1 10mM Dexamethasone	50 μL	-20℃
Reagent 2 5mg/mL Insulin	2*250 μL	-20℃
Reagent 3 50mM IBMX	1.5 mL	-20℃
Reagent 4 Oil Red O Saturated Solution	12mL	2-8℃

Note：

a. Reagent 1, 2, 3 are sterile solutions, can be directly prepared into a complete medium for use.
b. Reagents 4 is the subsequent independent verification test components, do not mix with the medium.
c. Before use, please centrifuge each tube of low-dose reagents instantly to avoid loss.
d. This product is only used for scientific research experiments, not for clinical treatment.
e. For your safety and health, please wear a laboratory coat, disposable gloves and a mask.

Product Characteristics

1. This kit is a ready-to-use product, customers do not need to carry out complicated dissolution, sterilization, packaging and other steps, can be used directly.
2. Reagent 2 is less stable after the second dissolution, and it is recommended that customers promptly store it at -20℃ away from light after receiving it. If the amount of each time is small, it is recommended to store at -20℃ away from light after packaging according to the amount of each time.
3. Flexible customization. Customers can flexibly add or remove compounds according to experimental needs. Customization of specifications and packaging is also possible.
4. Adequate inventory, spot delivery, high cost-effectiveness.

Protocols (*only for reference***)**

1. Adipogenic Induction Differentiation (6-well plate as an example)

1.1 Stem Cell Inoculation

The cells of logarithmic growth stage were inoculated into the coated culture vessel according to the cell density of 2×10^4cells/cm^2, and cultured at 37℃ and 5% CO_2 until the fusion degree was 90-100%. The supernant was discarded, and add adipogenic differentiation induction medium (containing Dexamethasone, Insulin, and IBMX).

NOTE：If the cell adhesion is poor, it is recommended to use 0.1% gelatin to coat the bottom of the culture.

1.2 Induction of Cell Differentiation

Cultivate in a 37 ℃, 5% CO2 environment for about 3 days, then replace with adipogenic induction differentiation medium maintenance solution (containing only Insulin). After 1 day of cultivation, replace with adipogenic induction differentiation medium induction solution and continue to culture for 3 days.

Induce according to the above fluid exchange frequency for 14-21 days, and pay attention to observing changes in cell morphology. Based on the number and size of lipid droplets induced by cells, determine the termination time of cell induction and perform staining identification.

2. Dyeing Identification

2.1 Cell Fixation

Remove the culture medium and wash it once with an appropriate amount of 1×PBS. After discarding, take an appropriate amount of 4% neutral formaldehyde solution and cover the bottom surface of the culture vessel. Fixed at temperature for 30-60 min, discard the fixing solution, and then use 1×PBS to clean twice.

2.2 Oil Red O Staining

Preparation of Oil Red O Working Solution：Mix Reagent 5 and distilled water as the radio of 3:2 to form Oil Red O Working Solution and place in room temperature for 5-10min,thenfilter it for use.

Add Oil Red O Working Solution to each well for 30min, absorb the dye, wash twice with 1×PBS, and add an appropriate amount of 1×PBS to avoid cell drying.

2.3 Induction Evaluation

Observe the effect of lipid staining under a microscope, and perform image acquisition and induction evaluation. When successfully induced, the lipid droplets combine with Oil Red O dye and appear red or orange red.

Note: The level of osteogenic differentiation of stem cells varies depending on cell type, cell donor source, culture conditions, cell generation, cell state, and differentiation time.

Related Literature

[1] Jia L, Zhang Y, Ji Y, Li X, Xing Y, Wen Y, Huang H, Xu X. Comparative analysis of lncRNA and mRNA expression profiles between periodontal ligament stem cells and gingival mesenchymal stem cells. Gene. 2019 May 30;699:155-164. doi: 10.1016/j.gene.2019.03.015. Epub 2019 Mar 12. PMID: 30876821.

Related Products

IK-OIN-5 Osteogenic Inducible Small Molecule Compound Kit-5（Solution,With Alizarin Red S and 10%CPC）

IK-OIN-7 Osteogenic Inducible Small Molecule Compound Kit-7（Solution,Without Alizarin Red S and CPC）

IK-LIN-7 Adipogenic Differentiation Small Molecules Kit-7（Solution,With Oil Red O）

IK-LIN-9 Adipogenic Differentiation Small Molecules Kit-9（Solution,Without Indomethacin）

IK-CEA-1 Cell Activation Kit-1