Droplite™ Green

Catalog number: 22729
Unit size: 100 Tests

Component	Storage	Amount (Cat No. 22729)
Droplite™ Green	Freeze (< -15 °C), Minimize light exposure	100 Tests

OVERVIEW

Lipid Droplets (LDs) are essential organelles responsible for storing neutral lipids, primarily consisting of triglycerides and cholesterol esters. Found in a variety of cell types, LDs play crucial roles in numerous biological processes, including metabolism, membrane biosynthesis, cell signaling, inflammation, and cancer-related mechanisms. Droplite™ Green, developed by AAT Bioquest, is a green fluorescent dye with an extremely high affinity for LDs and minimal cell toxicity. This probe has an excitation and emission maxima of 421 nm and 521 nm, respectively, and can be conveniently detected using fluorescence microscopy or an HCS reader. In cell culture experiments, Droplite™ Green demonstrates exceptional safety, even at high concentrations, ensuring reliable and accurate LD characterization without compromising cell health and viability.

AT A GLANCE

Protocol Summary

1. Prepare and treat cells in a growth medium.
2. Incubate cells with Droplite™ Green working solution for 20 to 30 minutes at 37 °C.
3. Remove Droplite™ Green working solution.
4. Add HHBS buffer and analyze using a fluorescence microscope equipped with a FITC filter set.

Important

The following is our recommended protocol for live cells. This protocol only provides a guideline and should be modified according to your specific needs. Thaw all the kit components at room temperature before starting the experiment.

KEY PARAMETERS

Fluorescence microscope

Emission	FITC filter set
Excitation	FITC filter set
Recommended plate	Black wall/clear bottom
Instrument specification(s)	FITC filter set

CELL PREPARATION

For adherent cells

1. Plate cells overnight in growth medium at 10,000 to 40,000 cells/well/90 µL for a 96-well plate or 2,500 to 10,000 cells/well/20 µL for a 384-well plate.

For non-adherent cells

1. Centrifuge the cells from the culture medium.
2. Suspend the cell pellets in culture medium at 50,000-100,000 cells/well/90 µL for a 96-well poly-D lysine plate or 10,000-25,000 cells/well/20 µL for a 384- well poly-D lysine plate.
3. Centrifuge the plate at 800 rpm for 2 minutes with the brake off prior to your experiment.

   Note: Each cell line should be evaluated on an individual basis to determine the optimal cell density.

PREPARATION OF STOCK SOLUTIONS

Unless otherwise noted, all unused stock solutions should be divided into single-use aliquots and stored at -20 °C after preparation. Avoid repeated freeze-thaw cycles

Droplite™ Green stock solution

1. Add 100 µL of DMSO into the Droplite™ Green vial and mix well.

   Note: 100 µL stock solution is enough for 100 tests. The staining conditions may be modified according to the particular cell type.

   Note: Make a single unused Droplite™ Green stock solution aliquot and store it at ≤ -20 °C. Protect from light and avoid repeated freeze-thaw cycles.

PREPARATION OF WORKING SOLUTION

Droplite™ Green working solution

1. Add 100 µL of Droplite™ Green stock solution into 10 mL of a buffer of your choice or cell culture medium, and mix well.

   Note: HHBS [Hanks' Buffer with 20 mM Hepes] buffer (AAT Cat# 20011) can be used to make a working solution. Prepare a fresh working solution just before use.

SAMPLE EXPERIMENTAL PROTOCOL

Stain cells

1. Prepare and treat cells in a growth medium as desired.
2. Add 100 µL/well (96-well plate) of Droplite™ Green working solution to the cell plate.

   Note: The optimal concentration of the cell membrane probe varies depending on the specific application.

3. Incubate the cells at 37 °C for 20 to 30 minutes, protected from light.
4. Remove the working solution in each well.
5. Wash twice with DPBS and add HHBS or DPBS solution to the wells.
6. Observe the fluorescence signal in cells using a fluorescence microscope equipped with a FITC filter set.

EXAMPLE DATA ANALYSIS AND FIGURES

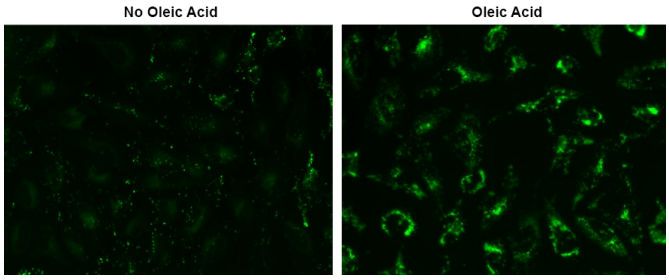

Figure 1. Fluorescence images of intracellular lipid droplets in control (left) and Oleic Acid treated HeLa cells (right) using Droplite™ Green. HeLa cells were incubated with 100 uM of Oleic Acid for 19 hours to induce intracellular lipid droplet formation. After washing with DPBS, HHBS was added to the cells, and images were acquired with a fluorescence microscope using a FITC filter set.

DISCLAIMER

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