



Cellular Viability Assay Analysis

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Tradename: AC Dermal Respiratory Factor Advanced PF

Code: 20219PF

CAS #: 7732-18-5 & 8013-01-2

Test Request Form #: 902

Lot #: 36082

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Study Director: Erica Segura

Principle Investigator: Meghan Darley

Test Performed:

Cellular Viability Assay

Introduction

The cellular viability assay is useful for quantitatively measuring cell-mediated cytotoxicity, cell proliferation and mitochondrial metabolic activity. Increased metabolism in a cell indicates ample cellular respiration and adenosine triphosphate (ATP) production. ATP is the molecular energy of cells and is required in basic cell function and signal transduction. A decrease in ATP levels indicates cytotoxicity and decreased cell function while an increase in ATP levels indicates healthy cells.

The cellular viability assay was conducted to assess the ability of **AC Dermal Respiratory Factor Advanced PF** to increase cellular metabolic activity in cultured dermal fibroblasts.

Assay Principle

The assay utilizes a nonfluorescent dye, resazurin, which is converted to a fluorescent dye, resorufin, in response to chemical reduction of growth medium from cell growth and by respiring mitochondria. Healthy cells that are in a proliferative state will be able to easily convert resazurin into resorufin without harming the cells. This method is a more sensitive assay than other commonly used mitochondrial reductase dyes such as MTT. An increase in the signal generated by resazurin-conversion is indicative of a proliferative cellular state.

<p>This information is presented in good faith but is not warranted as to accuracy of results. Also, freedom from patent infringement is not implied. This information is offered solely for your investigation, verification, and consideration.</p>



Materials

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|----------------------------------|---|
| A. Kit: | PrestoBlue™ Cell Viability Reagent (Invitrogen, A13261) |
| B. Incubation Conditions: | 37°C at 5% CO ₂ and 95% relative humidity (RH) |
| C. Equipment: | Forma humidified incubator; ESCO biosafety laminar flow hood; Light microscope; Pipettes |
| D. Cell Line: | Normal Human Dermal Fibroblasts (NHDF) (Lonza; CC-2511) |
| E. Media/Buffers: | Dulbecco's Modified Eagle Medium (DMEM); Penicillin-Streptomycin (50U-Saline (PBS) 50mg/mL); Fetal Bovine Serum (FBS); Phosphate Buffered |
| F. Culture Plate: | Falcon flat bottom 96-well tissue culture treated plates |
| G. Reagents: | PrestoBlue™ reagent (10X) |
| H. Other: | Sterile disposable pipette tips |

Methods

Human dermal fibroblasts were seeded into 96-well tissue culture plates and allowed to grow to confluency in complete DMEM. A 10-fold serial dilution was performed resulting in **AC Dermal Respiratory Factor Advanced PF** concentrations of 0.1% and 0.01% in complete DMEM and incubated with fibroblasts for 24 hours.

Ten microliters of viability reagent was added to 90µL of cell culture media in culture wells and a fluorometric measurement was taken at 560nm for excitation and 590nm for emission.

Results

The data obtained from this study met criteria for a valid assay and the controls performed as anticipated.

AC Dermal Respiratory Factor Advanced PF did not exhibit significant effects on the cellular metabolism.

Cellular metabolism results are shown as mean fluorescence units (MFU) and expressed as percentage change, calculated by the below equation:

$$\text{Percent (\%)Change} = \frac{MFU_{\text{Control}} - MFU_{\text{Sample}}}{MFU_{\text{Control}}} \times 100$$

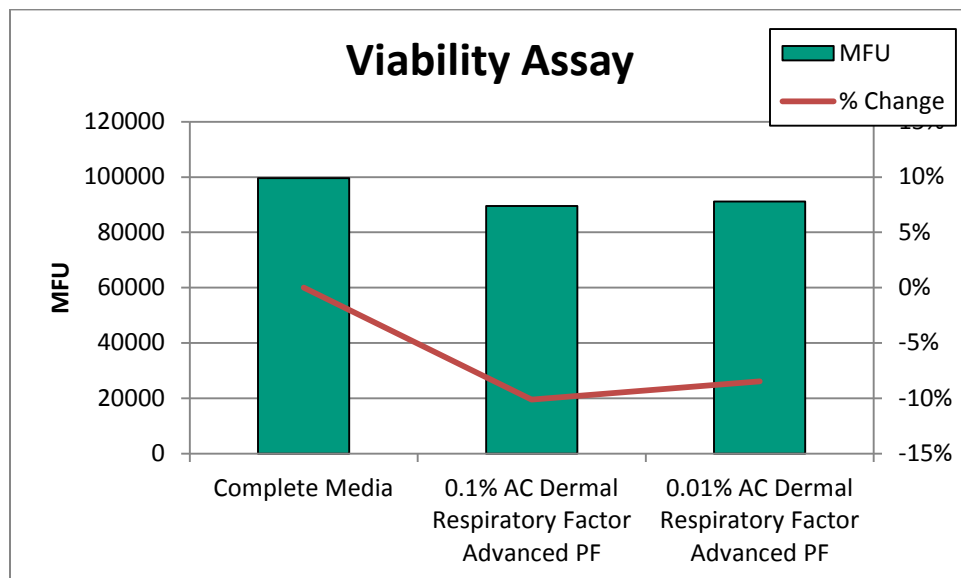


Figure 1: Cellular Metabolism of **AC Dermal Respiratory Factor Advanced PF**-treated fibroblasts expressed in terms of percent of control.

Discussion

In this study, **AC Dermal Respiratory Factor Advanced PF** (code 20219PF) was tested to evaluate its effects on the viability of normal human dermal fibroblasts (NDHF). At concentrations of both 0.1% and 0.01% **AC Dermal Respiratory Factor Advanced PF** (code 20219PF), nor the preservatives contained therein exhibited any inhibition of cell viability. It can therefore be concluded that at normal use concentrations **AC Dermal Respiratory Factor Advanced PF** (code 20219PF) is not cytotoxic.