



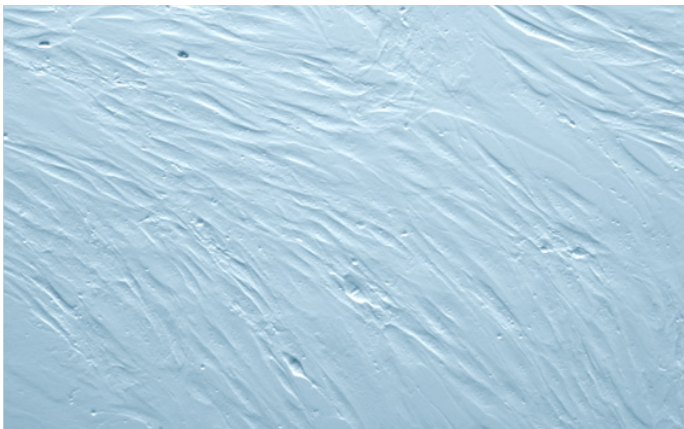
## Identifying Antioxidant Compounds for Personal Care and Cosmetic Product Development

### Objective

Accumulation of reactive oxygen species (ROS) in dermal fibroblasts can cause oxidative stress and premature skin aging. To identify compounds which can prevent free radical buildup and/or treat oxidative stress inducers, MatTek's Normal Human Dermal Fibroblasts (NHDFs) were used to screen potential antioxidants.

### Methods

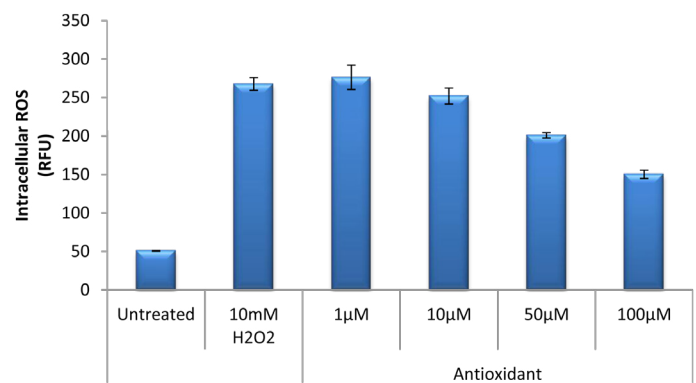
- MatTek's NHDFs (NHDF-CRY-NEO) were cultured in DMEM-10 according to manufacturer's protocol (**Figure 1**).
- Cells were pre-treated with increasing concentrations of potential antioxidant for 24 hours.
- Cells were incubated with 100  $\mu\text{M}$  of 2',7'-dichlorodihydrofluorescein diacetate (DCFH-DA, 10 $\mu\text{M}$ ) for 1 hour.
- Intracellular ROS was induced by a 1 hour incubation with 10mM  $\text{H}_2\text{O}_2$ .
- Levels of 2',7'-dichlorodihydrofluorescein (DCF), generated by ROS, were measured and changes in 485/528 nm ROS signal were compared to control (**Figure 2**).



**Figure 1.** MatTek's Normal Human Dermal Fibroblasts (NHDF-CRY-NEO), 10x Magnification.

### Results

NHDFs treated with Antioxidant showed dose-dependent decreases in intracellular reactive oxygen species following induction by  $\text{H}_2\text{O}_2$ .



**Figure 2.** MatTek's Normal Human Dermal Fibroblasts (NHDF-CRY-NEO) were treated with increasing concentrations of antioxidant test compound for 24 hours and then exposed to 10mM  $\text{H}_2\text{O}_2$ . Significant decreases in intracellular ROS levels were observed with increased concentrations of Antioxidant.

### Conclusions

MatTek's Normal Human Dermal Fibroblasts can be used to identify antioxidant compounds for personal care and cosmetic product development.

