

Session/Poster#

Presenter

**B10**

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### **Small Molecule Inhibitors of Human Dermal Fibroblast Proliferation**

Fibrosis and scarring are conditions that can significantly impact patients' quality of life. Many etiologies for these conditions disproportionately affect women and persons of color. These conditions arise from over-proliferation of human dermal fibroblasts (HDFs). There is no cure for these conditions and current treatments, including steroids, often produce unwanted side effects. Our current research investigates the impact of drug inhibitors at various doses on HDFs to elucidate potentially new treatments for skin fibrosis. Previous work in our lab showed that LED red light phototherapy inhibited HDF and collagen production. Subsequent whole genomic transcriptomic gene analysis revealed genes and pathways that were involved in the matrix metalloproteinases and extracellular matrix remodeling that were targeted with treatment. Bioinformatic analysis also revealed existing drug inhibitors that were found to have similar perturbations in gene transcription in HDFs.

Various HDF cell lines (CRL-2617 and AG-13145) are seeded at 5,000 cells per well in 24-well plates. After a 24-hour incubation, cells are treated with drug inhibitors at doses ranging from 1  $\mu$ M - 200  $\mu$ M for 6 hours. For each drug, there is also a control with DMSO of the same concentration. After an additional 48-hour incubation, cells are fixed with formaldehyde, stained with crystal violet, eluted with acetic acid, and loaded into a 96-well microplate for spectrophotometric analysis at wavelength of 595 nm. The drug inhibitor for each dose is compared to control to determine if there are statistically significant differences in fibroblast proliferation. The goal is to identify drug inhibitors that may lead to the development of new therapeutic modalities for skin fibrosis by impacting fibroblast proliferation. The team initially started with 10 potential inhibitors and has identified 4 potential drugs with significant results, including ML-210, SCH-79797, IMD-0354, and CPG-71683.