



## Genemarkers

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### Cannabidiol (CBD) Regulates Biomarkers that Induce Hair Growth

#### PRODUCT/SERVICE BACKGROUND INFORMATION

There is an ongoing need in cosmetic product development for science-based technologies to characterize mechanism of action and identify unique molecular pathways of novel ingredients and formulations. Nextgen sequencing (NGS) is an ideal method for achieving such goals. In this showcase, we demonstrate how the use of mRNASeq was used to determine how cannabidiol (CBD) regulates hair growth genes in dermal papilla cells (DPCs). While CBD in skin care has been taking place for several years, its use in other types of personal care products, such as hair care, is relatively new and there is limited data regarding efficacy and mechanism of action.

#### WHAT IS THE COMPANY INTRODUCING TO THE MARKET/INDUSTRY?

Genemarkers has launched two new testing services to evaluate the effects of active ingredients on hair growth. Testing may be performed using either nextgen sequencing or our new Dermal Papilla Cell (DPC) gene expression panel. Testing is performed using *in vitro* human dermal papilla cells. The DPC panel is a qPCR array comprised of 52 genes that regulate hair cell growth and development. Our study showed that CBD increases the expression of growth factors and molecules that regulate biological pathways that support hair growth. This work demonstrates how our new testing can be used in personal care to validate efficacy and identify novel biomarkers and mechanisms of action.

#### HOW WILL THIS NEW PRODUCT/SERVICE IMPACT THE INDUSTRY (BENEFITS)?

Our NGS service will enable cosmetic researchers with a state-of-the-art tool for assessing new materials of interest, for hair and skin care. Our NGS testing service includes comprehensive bioinformatics analysis with a focus on dermal pathways and biology; our testing service allows researchers with limited expertise in molecular biology to leverage this complex technology to identify novel biomarkers and pathways. Hair loss market in the US is projected to grow at a CAGR of 8.1% to reach 14.2 billion by 2028. This new testing service will help spearhead hair product testing and support product development to help our clients develop efficacious and novel products.