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Development of novel products for improvement of skin health

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The human skin is the largest organ of the integumentary system. Unhealthy or aged skin is related to many factors such as L oxidative stress, loss of moisture, inflammation and degradation of proteins. With aging, there is a misbalance between the skin cells turnover and degradation of Extracellular Matrix (ECM), comprising of collagen, elastin, Hyaluronic acid (HA) and Matrix Metalloproteinase (MMPs). This results into the dermis getting thinner and reduction of skin tone and elasticity, leading to fine lines, wrinkles, blemishes, age spots and unhealthy skin. UV induced damage also results in the deleterious effects on skin, resulting into dull and wrinkled skin. Increased sebum production and skin inflammation caused by P. acnes contributes to acne. Since 2009, animal testing has been banned on chemicals to be used in cosmetics. This has facilitated the development of cell based screening models to assess anti-aging and skin health promoting potential of new cosmeceutical products. At Dabur Research Foundation (DRF) India, we have developed a panel of validated screening models to evaluate effects of novel cosmeceutical agents on human skin equivalent cell lines. The potential of various test items such as plant extracts, peptides, growth factors secreted by human stem cells, multivitamin complexes and essentials oils were investigated on key skin cells such as, fibroblasts, keratinocytes, melanocytes and sebocytes. Levels of collagen, elastin and HA in fibroblasts, anti-oxidant and anti-inflammatory properties in keratinocytes were examined for anti-aging potential. Further, sebostatic potential in human sebocytes and anti-blemish/skin-whitening properties in melanocytes were evaluated. The safety of test agents is tested using fibroblasts/keratinocytes and further confirmed in 3-D skin models. The multiparametric strategy developed at DRF for development of cosmeceutical products along with the case studies will be discussed.

Biography

Manu Jaggi holds a Doctorate in Cancer Biology from National Institute of Immunology, Delhi and has completed his Master's in Pharmaceutical Sciences. He is the Chief Scientific Officer of Dabur Research Foundation (DRF). He has extensive experience in the area of skin-care biology and screening of variety of cosmeceutical agents. DRF provides a range of research solutions in preclinical biology to national and international pharmaceutical & biotechnology companies with a comprehensive range of services for pharmacological, biological and analytical testing in therapeutic areas such as Oncology, Metabolic Diseases, Inflammation, Immunomodulation, Dermatology, Hair Biology and Gastric Diseases. He holds more than 100 patents and has published and presented more than 150 research papers in peer reviewed journals & scientific meetings. A comprehensive range of screening assays for studying the skin-health and anti-aging potential has been developed.

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