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## Development of novel hair growth promoters addressing various forms of Alopecia

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The hair growth cycle consists of 3 phases: growth phase (anagen phase), regression phase (catagen) and resting phase (telogen). The Dermal Papilla (DP) is the main mesenchymal component of hair follicle, which plays important role in induction of new hair-follicles and maintenance of hair growth. Alopecia (hair loss) is a common hair disorder, especially in males. Androgens, nutritional deficiency, genetic factors, age, stress and environmental conditions contribute to alopecia. Finasteride and Minoxidil have been approved for the treatment of hair loss by the US FDA. However, the drugs have limited and transient effects, with unpredictable efficacy and side effects. Hence, development of novel effective cosmeceuticals to prevent hair loss and enhance hair growth is an unmet need. Herbal hair growth promoters have been investigated for hair growth promoting effects. The development of potent hair growth promoters from natural ingredients has been impeded by lack of models predictive of hair growth in humans. At Dabur Research Foundation India (DRF), we have developed a repertoire of validated screening models to assess activities of products for hair growth promotion. We have investigated the hair growth promoting potential of plant extracts, Androgen receptor downregulators, peptides, and growth factors secreted by human stem cells in validated rodent based models. These models are optimized to quantitate hair growth as well as the improvement in hair quality, strength & colour. Further we have worked with in vitro and ex vivo assays that suitably represent the characteristic features of hair follicle. We have tested hair growth promoting efficacy of plant actives, herbal extracts and oils using DPCs. Whole hair organ cultures were generated to evaluate the efficacies of marketed formulations, hair oils and plant actives. The multiparametric strategy developed at DRF for development of potent hair growth promoters along with the case studies will be discussed.

### Biography

Anu T Singh has completed her PhD in tumor biology from All India Institute of Medical Science, Delhi and postdoctoral research from National Institute of Immunology, Delhi. She is the Vice President of Dabur Research Foundation (DRF). She has published and presented more than 40 research papers in peer reviewed journals & scientific meetings. She has extensive experience in the area of hair biology and screening of variety of hair products. DRF provides a range of Research Solutions in Pre-clinical 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 and Gastric diseases. A comprehensive range of screening assays for studying the hair biology has been developed.

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