

**nature**  
[ **inside**view ]

ESTÉE  
LAUDER  
COMPANIES

Profile Feature as seen in *Nature* 28 October 2021

# THE DIVERSE TEAM OF SCIENTISTS AT THE CORE OF COSMETIC TESTING

A conversation with **UMA SANTHANAM**, Estée Lauder Companies



For the Estée Lauder Companies (ELC), creating beauty products is as much a science as it is art. Uma Santhanam, head of clinical research at ELC, leads a diverse team of scientists and specialists that uses rigorous clinical testing and sophisticated biochemical analysis to develop new products. Santhanam explains how looking at beauty through the lens of science can help create innovative products, and what cutting-edge technologies and techniques are involved in ELC clinical testing.

**What led you to a career in beauty?**

I have always been fascinated by biology. Upon finishing my post-doctoral research in cancer my natural inclination was to look for a job in the pharma industry. When an opportunity arose to join the R&D lab of a cosmetics company, I was skeptical — even until I went for the interview. But I was very pleasantly surprised by the high level of science that went into the development of cosmetic products. That was more than 25 years ago and since then, the industry has really grown by leaps and bounds in terms of its research quality.

**What type of professionals would you find in an ELC Clinical Testing lab?**

Our clinical testing team consists of biologists, biochemists, chemists and biophysicists. For certain studies, dermatologists and ophthalmologists lend their expertise. We also have staff members who have been trained to use validated scales to assess improvements in various skin parameters through live grading and grading of photographs, as well as staff members who develop and use software for image analysis. A core group of statisticians and writers then analyse data and compile reports for the clinical studies.

**Why is clinical testing so important in the development of beauty products?**

Clinical testing is fundamental because it helps guide the development of a formula to deliver specific benefits, and it helps to verify that a product is delivering the promised benefits to the consumer.

**How do you ensure consistency during these trials?**

Consistency is absolutely essential to clinical testing. We follow Good Documentation Practices (GDP) and Good Clinical Practices (GCP) in all of our operations. We rely on instruments to measure specific skin properties, e.g. hydration. These instruments are regularly calibrated to assure accurate measurements. We ensure that we take clinical images under controlled lighting and reproducible conditions. Our staff undergo rigorous training on how to operate the instruments to ensure consistent data are obtained.

**How do ELC's clinical trials compare with those conducted by a pharmaceutical company?**

They share many similarities, for instance in pharmaceutical clinical trials, they follow GCP, and there are certain elements of GCP that are very much a part of our own testing process.

**CLINICAL TESTING IS FUNDAMENTAL BECAUSE IT HELPS TO VERIFY THAT A PRODUCT IS DELIVERING THE PROMISED BENEFITS.**

Our studies are conducted under GCP as described in the US Code of Federal Regulations (CFR), Title 21, CFR, Parts 50 and 312 and International Council on Harmonisation (ICH) Guidelines for GCP. For example, we start with informed consent, and make sure the subjects are kept well informed throughout the testing process. We actively monitor the safety of participants and track adverse events. We protect the confidentiality of all participant records and we have a quality assurance group that monitors all aspects of the study through completion and reporting.

**How do you ensure that the ELC lab is always up to date with research?**

ELC Research and Development keeps abreast of the latest scientific publications and conference presentations. For example, they track innovations in the microbiome, genetics, and metabolomics. Within ELC, we have some groups that focus on early innovation

research to understand and apply emerging findings across a variety of fields to our own research. We also collaborate with universities to conduct research and have many different initiatives to keep us at the cutting edge of science.

**What new areas of science is ELC keeping an eye on?**

One area from which we've drawn significant insight and which has inspired our own research and testing is epigenetic research. In twin studies, one sibling may look significantly younger than the other despite having the same DNA. We know they age chronologically at the same rate, but their lifestyle and environment can strongly affect the appearance of ageing. Understanding those epigenetics and lifestyle factors is something we can use to influence our cosmetics. Ageing is inevitable. But there are definitely steps you can take to slow it down and ways to address the appearance of ageing to make an individual look the best they can, given their biology and lifestyle.



THE ESTÉE LAUDER COMPANIES  
RESEARCH & DEVELOPMENT

# INVENTING THE FUTURE OF BEAUTY

At The Estée Lauder Companies, invention is at our core. Our employees engage in global research and development efforts across a wide variety of disciplines including advanced technologies in physics, chemistry, biology, and engineering. These skills paired with expertise in state-of-the-art technologies and manufacturing practices enable our brands to be at the forefront of our industry while ensuring the highest safety, quality and performance standards.



