At the cutting edge of innovation in cosmetics

Almost 3,000 people, 13 research centres and 13 evaluation centres across the world play their part in devising some 4,000 new formulas for the main cosmetics businesses: hygiene, skincare, sun protection, make-up, haircare, hair colourants, styling and fragrances. Research at L'Oréal takes a wide variety of forms and is totally international. This was demonstrated once again in 2004.

A KEY MISSION: APPLICATION-FOCUSED RESEARCH

The intense activity and productivity of L'Oréal research would be impossible without a streamlined and global organisation of resources. Advanced research focuses on two areas of development: skin and hair, the two human materials to which cosmetics can be applied. The most advanced knowledge of skin and hair is essential for the design of truly effective products.

The development laboratories, meanwhile, are organised according to the fields in which they operate: haircare, skincare, make-up and perfumes. In each case, the structures are international, as are the transversal functions and support services, such as patents, regulatory affairs, information systems, supplier relations and safety.

This organisational structure reflects the group’s targets of profitability, productivity and growth. Global coordination prevents duplication and fosters technology transfers as well as the enrichment of existing technology. It also raises awareness of local issues and suggests how products can be adapted to suit both consumers’ expectations and regulatory requirements. With this aim in mind, the policy is to apply the most stringent requirements all over the world.

* By enlarging objects 10,000 times, these electronic microscopes are used to explore and understand the intimate structure of the hair and skin.
Internationalisation also goes hand in hand with the global roll-out of local brands acquired by the group, such as YUE-SAI, SHU UEMURA, MAYBELLINE, REGKEN and SOFTSHEEN-CARSON, which were originally developed in their home countries.

The bridges built between advanced research and applied research and development are made even more effective as they are enriched with shared knowledge, concepts and new technologies. Advanced research provides applied research and development entities with concepts, compounds and instrumentation, which then are adapted to suit the specific positioning of each brand in its markets.

The success of these applications depends on the know-how of the formulators, who select different technologies to be highlighted in all the group’s products (the technology may be an operating procedure to achieve a specific emulsion of oil in water, or an association of polymers to provide properties such as suppleness, smoothness and shine).

All of our researchers around the world, from advanced research to development, are continually focused on the application, products, brands and consumers. This focus enables us to correctly anticipate future developments.

RESPECT FOR DIVERSITY

Diversity – whether cultural, ethnic, regulatory or scientific – is a key consideration when devising a cosmetic product to be applied to healthy skin and hair in order to maintain good condition, to cleanse or protect against the effects of the sun, wrinkles, blemishes or hair loss. Setting out from the basic principle that “all are equal, all are different”, it is clearly essential to integrate diversity in all its forms in order to build the future of cosmetics.

During the 1980s, L’Oréal research took the practical step of investing in the life sciences to gain a better understanding of the effects of exposure to the sun on the skin, the ageing and whitening of skin and hair, and the growth and loss of hair. The use of in vitro methods to reconstitute skin and to grow hair that has been kept alive has led not only to a greater understanding of these two human organs, but also to the development of precisely targeted tests to evaluate the harmlessness and efficacy of both ingredients and finished products without animal testing.

Investing in physical methods to explore skin and hair is another research priority. Increasingly powerful microscopes, microelectronic sensors, nanosensors, image analysis and modelling can all be
Behind the scenes: Hypnôse mascara

Hypnôse, the volume-effect mascara from LANÇÔME, is a successful product, extremely popular with consumers, based on a thorough knowledge of lashes, expertise in formulation and texture, the ideal matching of the brush with the formula, and the application of two recently developed technologies.

What part does science play in Hypnôse?

The art of formulation, that is the mixing of ingredients which are not always compatible (oils, waxes, polymers, pigments, fillers, etc.) to colour and increase the volume of the lash, by adding body without forming lumps while keeping the lashes separate.

2,979 employees of cosmetic and dermatological research

used to explore structure, understand the resulting properties, analyse the mode of action of a product and devise tools for the objective analysis of product efficacy.

Furthermore, the gradual extension of our research centres over three continents, with one centre recently opened in Chicago and another planned in Shanghai, will enable us to explore the characteristics of all ethnic groups, formulate specific products or adapt existing international products. This forms part of a wider “melting pot” process taking place over the whole planet, and the opening up of new markets in Asia, Latin America and Africa.

L’ORÉAL TURNS EVALUATION INTO A SCIENCE

The intensification of evaluation efforts is today strengthening L’Oréal’s research capability. Evaluation can provide proof of the harmlessness and efficacy of products by the use of reliable and reproducible methods, and enables the monitoring of actual performance in normal conditions of use by consumers the world over. This extraordinary challenge cannot be taken up without knowledge and research.

Research must also be focused on ensuring traceability for which chemical analysis is essential. Finally, the formulation stage actually gives birth to the product, which is tested, once again, to ensure its harmlessness and check its performance levels. In carrying out this task, L’Oréal has two advantages: the development of in vitro models and instrumental methods for non-invasive in vivo analysis.

Reconstructed skin that reproduces the main functions of human skin, and hair that has been kept alive and grows like human...
Hair on the head are remarkable evaluation tools from a biological viewpoint. Some stages of skin ageing can be simulated and the cycle of a hair can be studied. Instrumental methods objectively measure parameters such as moisturisation, wrinkle surface, colour, sebum secretion, hair breakage resistance, diameter, and even subjective characteristics such as softness and touch. In many cases, these results are enriched by external evaluations. Sensorial analysis is also used to check that the formula is synergistic with perceptions. The final verdict is that of the consumer and the professional hairdresser or beautician, and here again L’Oréal research carefully listens to their views expressed in its application rooms all over the world.

The complexity of healthy skin and hair, together with the expectations of each consumer, explain why the evaluation of the performance of a cosmetic product is so important. L’Oréal has turned evaluation into a science.

Evaluation, like all the other research activities, can only progress by remaining attentive to the outside world and ensuring that knowledge is shared, particularly through exchanges with suppliers, other research centres and other sectors of the industry. In 2004, L’Oréal research published some sixty scientific articles. It is also involved in around a hundred external collaborative projects, demonstrating its spirit of openness and its eagerness to be “in at the start”. All these activities give rise to a mosaic of talents which are crucial for the creation of a really effective beauty care product.

The laboratories have gone beyond the stage of evaluating harmlessness and efficacy by focusing also on ecotoxicity, traceability and sustainable development. The raw materials chosen must also meet these requirements.