

# The Beauty Born from Science.

In 1909, L'Oréal was forged by a chemist's hands and ideas, Eugène Schueller. Ever since, science has remained the innovation power engine at the heart of L'Oréal's model with its Research & Innovation.

"A single idea pushed to its limits every day leads to the ends of the earth".



### Barbara Lavernos

Deputy CEO, in charge of Research, Innovation and Technology



"Science has always been at the heart of our model—for over 110 years now. Our 3,900 scientists around the world have a single obsession: innovating to provide our brands and consumers with the best of science and create unequalled beauty experiences that meet their infinitely diverse needs and aspirations."



## Beauty Science, at the core of our mission

Beauty Science that's inclusive, that flourishes on humanity's infinite diversity and empowers every individual to express who they are or who they want to be at any given moment.

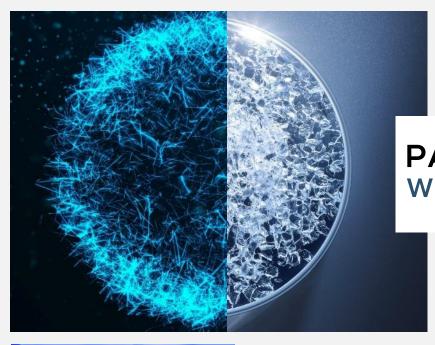
Beauty Science that's inspiring and always one step ahead whether it's pioneering Green Sciences, introducing new cutting-edge formulas, or developing new ways of bringing beauty, health and wellbeing to people around the world.

**Beauty Science that's respectful,** that prioritizes sustainability, safety and quality because making a positive impact on people's lives while preserving the planet, that's true leadership.

Beauty Science that's open and collaborative, a living ecosystem in which we can exchange our expertise, inspire each other's ideas, and harness our collective power to create even more effective products, experiences and solutions.

**Beauty Science that's passionate,** that perseveres, that's dedicated and optimistic for the future because we know that tomorrow is built on every decision we make today.

Create the Beauty That Moves the World.



PART 01. WHO WE ARE



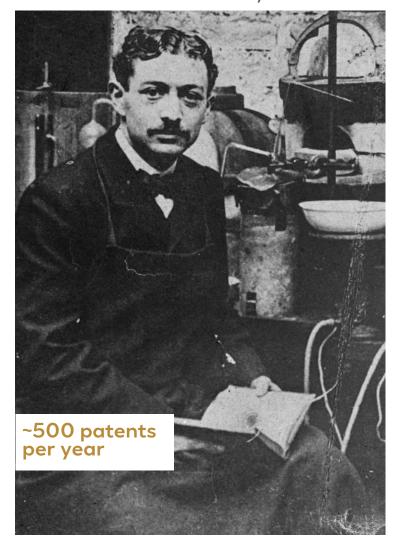








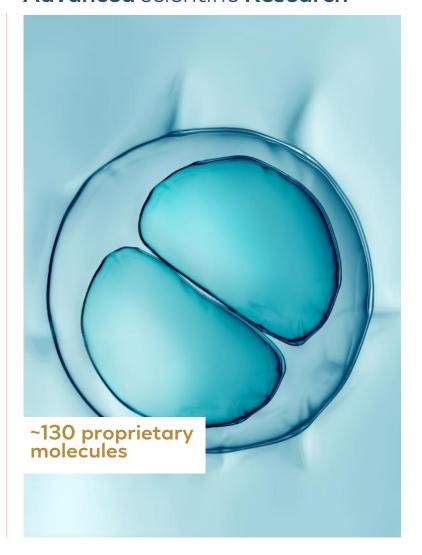
## More than 110 years of science & innovation in Beauty



**Biggest Beauty Research** in the Cosmetics industry



## Largest fundamental & Advanced scientific Research





## More than 110 Years of Science & Innovation in Beauty



1908

First L'Oréal Patent: "Procédé de teinture pour cheveux et poils" - Dyeing process for hair - published on March 24, 1908

1929

Imédia, the first rapid oxidation hair color

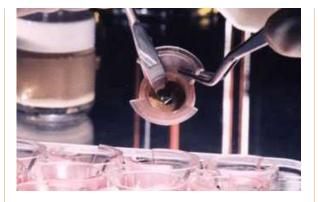


1935

Ambre Solaire, the first tanning oil with a filter

1966

The first designer fragrance developped by L'Oréal: Fidji by Guy Laroche



1979

First reconstructed epidermal model by L'Oréal Research

1986

Niosôme by Lancôme, a major step forward in anti-age care



2020

Launch of Perso, the World's first Al-Powered device for skincare and cosmetics

2022

Launch of UVMUNE 400 by La Roche Posay, a revolutionary filter that protects against UVB + ultra-longs UVAs





## Biggest Beauty Research in the Cosmetics Industry

2022 Key Figures

3,900

scientists worldwide

€1,1billion

invested in Research & Innovation

85

different nationalities

6

awards at the Las Vegas Consumer Electronics Show in 2023 20

research centres with 6 regional hubs and 3 global centres

13

evaluation centres

13,000+

product evaluation tests

4,700+

new formulas launched on the market

561

patents registered in 2022

55%

of patent inventors are female in 2022

L'ORÉAL RESEARCH & INNOVATION



# Quality, Safety, Responsibility No.1

### We are for Beauty with no animal testing.

PRIORITY

L'Oréal does not test any of its products or any of its ingredients on animals and has been at the forefront of alternative methods for over 40 years.

worldwide quality management system

+2,000

different analytic methods to test raw materials, finished good products +110

experts, toxicologists, pharmacists & doctors experiencing these methods

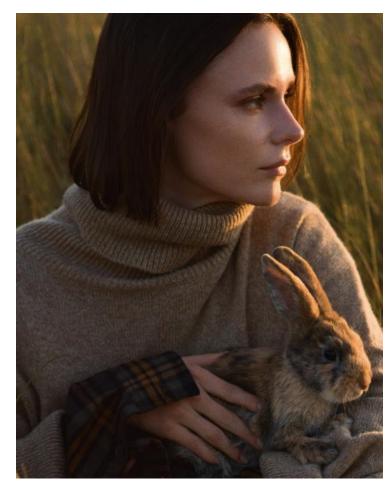
+100

scientists working in the Human & Environmental Safety Department

+7 Billion products sold /year



# Since 1989, we have not tested the safety of our products on animals



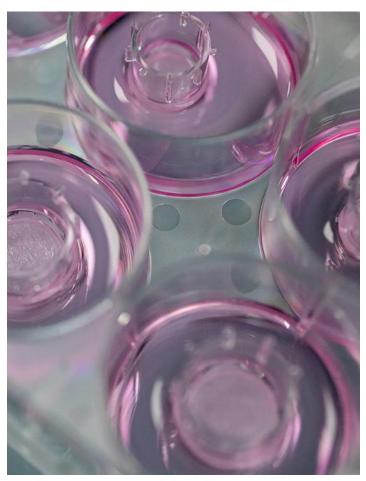
We have developed a scientific rigorous safety evaluation process of its products & ingredients, and have a long-standing commitment to new methods of assessing safety that do not involve animals.

## For over 40 years, we have been pioneers in alternative methods



There are effective non-animal ways to ensure the safety of cosmetic products, and we have been pioneers in investing in the search for alternative methods and their development.

# With our Episkin labs, we are leading the development of human reconstructed skin



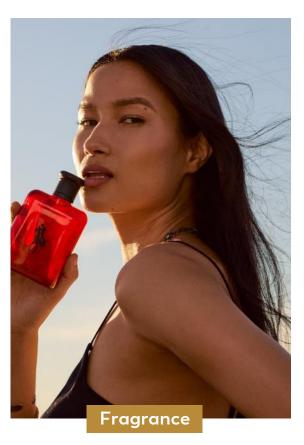
It is more accurate for analyzing how cosmetic ingredients and products behave on human skin. This reconstructed human skin was created by L'Oréal in 1989. Today we have 3 EPISKIN dedicated production centers in France, China, and Brazil.

## Our Beauty Science For All Beauty Categories









### **Our International Footprint**

Fueled by **3,900** passionate scientists around the world to reach the infinite diversity of our consumers and scientific ecosystems.



**3**Global centres in France



6 Regional hubs



20

Research centres



13

Evaluation centres







RESEARCH & INNOVATION



### Our Research & Innovation Model

From the consumers' **insights** to the consumers' **experience**. From **upstream research** to **downstream development**.

### UPSTREAM DISCOVERY TO DOWNTREAM DEVELOPMENT

Innovation Direction
Advanced Research
Beauty Science Métiers

### TRANSVERSAL PLATFORMS: OUR POWER ENGINES

Evaluation Intelligence
Safety, Regulations, Claims & Microbiology
L'Oréal for the Future & Green Sciences
Digital & Tech
Open Innovation
Operational Excellence

### 3 INTERNATIONAL ZONES

Emerging Markets

North Asia

North America

#### **SUPPORT FUNCTIONS**

Administration & Finance
Communications & Engagement
Human Relations



### Upstream Discovery to Downstream Development



Capture & transformation of science and consumers' knowledge, insights, trends into the innovative beauty experiences of the future.



Upstream fundamental scientific research: From discovery of new ingredients and molecules to the invention of new actives, materials & technologies.



From product formulation to products & experience development, to augmented devices & services for each of the 4 beauty categories: Skincare, Make-up, Hair & Fragrance.





### **Innovation Direction**

Consumer is at the heart of our strategy.

We blend knowledge, science and technology to stay ahead of the curve and to imagine unprecedented beauty solutions.

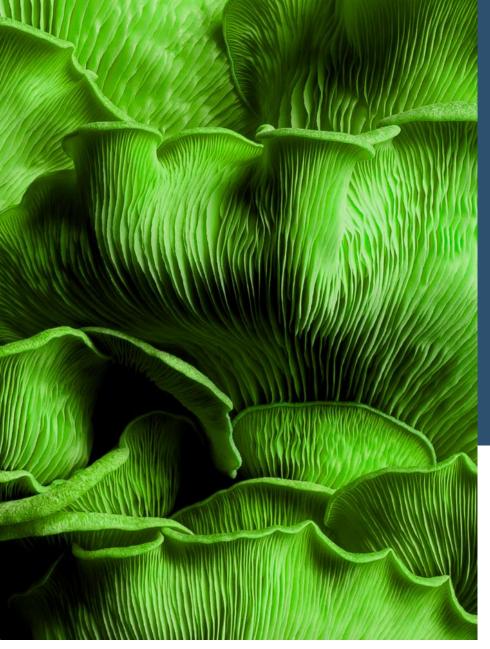
The Innovation Direction is one of our most important competitive advantages thanks to its deep knowledge of the beauty world, consumer's insights & expectations, and market specificities around the world. It allows us to capture and propose the beauty experiences of the future.

The Innovation Direction anticipates emerging beauty trends wherever they come from studies and deep dives into the understanding of consumers, reinforced by its remarkable insight into beauty cultures, needs, desires and aspirations.

The teams decode the diversity of the needs and aspirations of our consumers around the world. Finally, its long-term mission is to encourage very early on the creation of disruptive products, "game changers" that will radically change people's lives.

Together with L'Oréal International Brand Marketing teams, our experts build a strategic roadmap of innovation to transform our big innovations into great products for Brands.





### **Advanced Research**

L'Oréal is the only Cosmetics Group to have an upstream research with more than 800 scientists around the world

Advanced Research aims to capitalize on unique skin & hair scientific knowledge to develop new raw materials, molecules or active ingredients with unequalled performance and measured environmental impact.

Every day, scientists, chemists, biologists, physicians (...) focus on the study of skin and hair biology. They work on reconstructed human skin, and use a wide variety of techniques and technologies, including molecular biology, genomics, biotechnology or biomimicry (...) to identify and create new active ingredients and materials. For the past several years, we are committed to sustainably transform our portfolio of raw materials, active ingredients and formulas: nature and the living world are a major source of scientific discoveries.

**6 discoveries among 130 proprietary molecules** that have changed the world of beauty:

#### **IONENE G**

Patent 1974
Protective polymer of the hair fiber in the coloration

#### THERMAL PLANKTON

Patent 1994
Hydrating active that stimulates skin defense mechanisms

#### **AMINEXIL**

Patent 1990 Anti-hair loss active that fights against the stiffening of collagen

#### **PRO-XYLANE**

Patent 2000
Green chemistry anti-aging active that fights cells elasticity loss

#### **CERAMIDE R**

Patent 1991 Hair fiber repairer

#### MEXORYL SX, XL, UVMUNE 400

Patent 1982, 1989, 2022 UV filter fighting against UVB & ultra-long UVAs

### **Advanced Research**

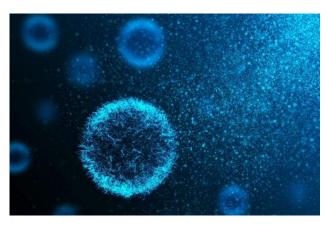
Pushing the frontiers of Science in 4 fields



**BIOTECH** 



**REGENERATIVE SCIENCES** 



**MICROBIOME** 



**SKIN TECH** 



### ĽORÉAL & INNOVATION

### **Beauty Science Métiers**

Innovating for the best extra-performance, quality, safety and sensoriality

Drawing on L'Oréal's scientific heritage and in-depth knowledge of skin and hair, Innovation & Products Development & Augmented Beauty Métiers experts create. formulate and deliver innovative & performing desirable beauty solutions (products, experiences and services), that make a real difference for consumers, shaping inclusivity & sustainability for the beauty industry, without ever compromising on quality, safety and performance.

The teams aim to invent new beauty routines thanks to effective formulas but also thanks to sensory factors such as fragrance, color or texture.

They are also continuously reinventing beauty experiences in a "phy-gital" world, moving from digitalization to virtualization, powered by online and offline data.

Laboratories are implemented all over the world, to be always closer to consumers. They are divided into 4 product Categories and are constantly innovating to develop new beauty experiences to consumers in all their diversity.

#### SKINCARE APPLICATION DOMAINS & LABS

Anti-Aging, Photoprotection, Cleansing & Make-up Removal, Hydratation, Bodycare, Skin Transformation, Hygiene

MAKEUP APPLICATION

**DOMAINS & LABS** 

Skin Tone Management,

Lips, Face & Hybrids, Eyes

### **FRAGRANCE LABS**

Fine Fragrance, Parfumage, Science of Fmotion

#### **AUGMENTED BEAUTY**

HAIR CARE & HAIR COLOR APPLICATION

**DOMAINS & LABS** 

Hair Care, Hair Color, Scalp,

Hair Manageability

Services & Devices powered by science & tech.

### Transversal Platforms: our Power Engines



From observing to characterizing consumer behavior to detecting specific uses, to offer the best performance to our consumers around the world and formulas adapted to their environment, their culture and their singularity.



Making L'Oréal become the preferred partner within the most innovative external ecosystem while scouting, attracting and partnering or co-creating with innovative startups, tech partners, academics, incubators etc.



Providing quality and safe cosmetic products to all our consumers, medical and beauty professionals to ensure our products are safe and efficient with the most trustworthy claims.



To invent the beauty of the future, we aim to become ourselves the R&I of the future by adopting the latest technologies and work methods so our people and our partners can become more agile and creative than ever.



Empowering the trajectory of Green Sciences and the circularity of resources in order to make L'Oréal the champion of formulation with increased performance inspired by nature and respectful of planetary boundaries;



As a transversal change agent, defining and orchestrating deployment of the most pragmatic and modern fundamentals, working processes and knowledge to create together innovation with serenity, speed and scale.



## **Evaluation Intelligence**

Observing and characterizing consumer behavior to transform this knowledge into powerful & meaningful beauty experiences

This in-depth knowledge and intelligence makes it possible to detect specific uses, to offer the best performance to our consumers around the world and formulas adapted to their environment, their culture and their singularity.

The objective is to guide the design of inclusive and sustainable beauty experiences and to support claims tests for brands. The whole consumer experience is considered, from the beginning to the end of the product's life including pre and post usage, and integrating the dimensions of sensoriality, emotions and behaviors as well as the understanding of packaging usage by consumers.

As a key player in innovation, Evaluation Intelligence teams embody and amplify the voice of consumers within innovation projects and bring their expertise in consumer, sensory and clinical/instrumental sciences.

#### **Consumer Science**

Knowledge of cultural contexts, environments, daily hygiene and beauty routines.

### **Sensory Science**

Beauty experts decipher and translate the performance of a product.

#### **Clinical & Intrumental Science**

All products are tested and evaluated by both machines and volunteer panels.



# Safety, Regulations, Claims & Microbiology

Providing quality and safe cosmetic products to all our consumers, medical professionals and beauty professionals

This department is committed to ensure our products are safe and efficient, evaluation process begins at the earliest stages of product conception and continues once the products have been released to market.

Regulatory Intelligence identifies, analyzes and communicates changes in regulatory frameworks that may have an impact on the compliance of L'Oréal products, in close collaboration with the regulatory network (regions, zones and countries). It also defines internal strategies to ensure the regulatory compliance of products throughout their life cycles

The mission of **Safety Evaluation** towards consumers, professionals and business partners is to create cosmetics from which the harmlessness was guaranteed according to the highest standards and following current and local regulations of countries and markets.

Claims Substantiation provides support and expertise to Marketing teams and brands to translate our product and scientific innovations into strong and sincere proofs for our consumers.

**Mircrobiology** guarantees the quality and microbiological safety of L'Oréal products by integrating Operations, Business and consumer expectations.





### L'Oréal for the Future & Green Sciences

This department catalyzes all the R&I teams in the trajectory of L'Oréal for The Future commitments, thanks to the Green Sciences and the circularity of resources and water resources. We want L'Oréal to be the champion of formulation with increased performance inspired by nature and respectful of planetary boundaries.

#### L'Oréal for the Future 2030 Commitments on which R&I is directly involved:

- 95% of our ingredients will be biobased, derived from abundant minerals or from circular processes.
- 100% of our products will be eco-designed
- 100% or our formulas will be evaluated thanks to our environmental test platform to guarantee they are respectful of all aquatic ecosystems.
- Reduce by 25% the water consumption linked to the use of our products
- Reduce by 25% on average the GHG emissions resulting from the use of our products

## L'Oréal for the Future & Green Sciences

The teams are dedicated to following-up the strategic implementation of the Green Sciences program within all the laboratories at a worldwide level.

- In 2022, **61%** of ingredients are of renewable origin, derived from abundant minerals or from circular processes.
- In 2022, more than 80% of our raw materials newly referenced are renewable.
- In 2022, **97%** of new or renovated products launched have an improved environmental or social profile.

Sustainable innovation & Ecodesign: Guarantee the scientific suitability of the assessment methods to measure the environmental impact of our ingredients, formulas, products and routines according to the Life Cycle Analysis approaches; Identify the eco-design drivers and communicate them to the laboratories; Develop the KPIs and progress monitoring for the L'Oréal for the Future objectives for R&I.

Climate Change & Water Scarcity: Identify the challenges and strategic stakes to adapt our sourcing and feedstocks, as well as our products and services, to climate change, problems linked to water (scarcity, rareness, accessibility, quality) and the preservation of the resources.

Our experts are also dedicated to piloting our vast network of collaborations to ensure the right connections worldwide with the key opinion leaders and stakeholders in the field of sustainable development to help us achieve our 2030 L'Oréal for the Future.

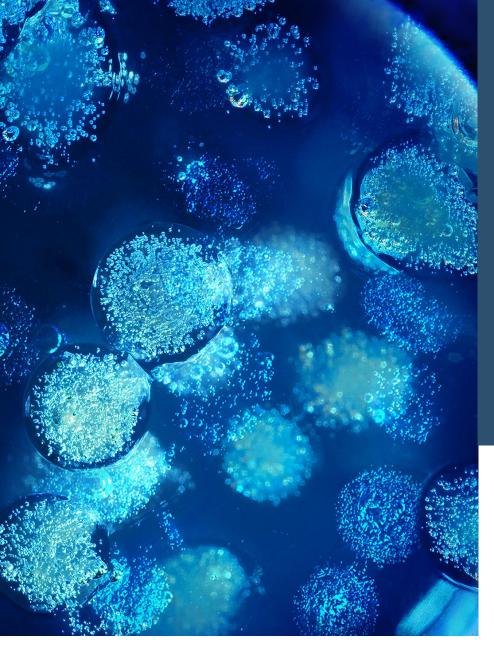


### Digital & Tech Transformation

To invent the beauty of the future, we aim to become ourselves the company of the future. We are adopting the latest technologies and work methods so our people and our partners can become more agile and creative than ever.

This department is dedicated to empowering and increasing our researchers' capabilities with data & Al, digital tools and tech solutions for more efficiency and added-value in their daily work.

This on-going digital transformation is not only necessary to achieve our 2030 ambitions but to master the increasing complexity, to deal with a new competitive landscape and to tap into unexplored opportunities for costumer centric innovation of new products, services, and experiences.



## **Open Innovation**

"Saisir ce qui commence" - seize what is coming- is a fundamental part of our culture. We embrace and nurture innovation

The Open Innovation Department mission is to make L'Oréal become the preferred partner within the most innovative external ecosystem while scouting, attracting and partnering or co-creating with innovative startups, tech partners, academics, incubators etc.

4 activities to help all R&I teams identify, implement and lead these strategic partnerships:

#### **WATCH**

To map the external ecosystem and identify potential partners, thus responding to the specific expertise field and territories we want to explore.

#### **TECH PARTNERING**

To build opportunities and strengthen the L'Oréal network within the innovative ecosystem worldwide..

#### **BUSINESS DEVELOPMENT**

In charge of transforming opportunities into great deals

#### **ALLIANCE MANAGEMENT**

To ensure objective monitoring and outcomes of these alliances.



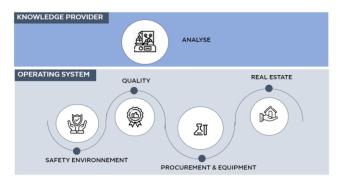


### **Operational Excellence**

International Analysis, Safety Environnement, Quality, Procurement & Equipment, Real Estate

"From Back Office to Back Bone"

As a transversal Change agent, we define and orchestrate the deployment of the most pragmatic and modern fundamentals, working processes and knowledge to create together innovation with serenity, speed and scale. Our organization is composed as following:



#### 4 focus areas to deliver:

1/ CREATION of an integrated set of FUNDAMENTALS in order to simplify, optimize, secure the way we work

**2/ UPSKILL our TEAMS** to deploy the fundamentals, to be able to manage complexity and gain in autonomy

3/ ACCELERATE ANALYTICAL CAPABILITIES to accelerate transformation and protect our brands

4/ DESIGN efficient and modern FLOWS, EQUIPMENTS, WORKING SPACES

### **Our 3 International Zones**



Brazil, India &
Sub-Subharian Africa



North Asia China, South Korea, Japan & Singapore



USA & Canada





## **Emerging Markets**

L'Oréal R&I has a strong scientific footprint in Emerging Markets with its Research Centres in **Brazil** (LATAM market), **in South Africa** (SSA Market) **and in India** (SAPMENA Market).

- 43 markets spanning 3 continents
- 53% of the population in below 30 years old
- 48% of the world Population
- +684 M of middle-class population by 2030 (\$20-110 per day)
- 20% of the 20 most expensive cities in the world are in Emerging Markets

The Emerging Markets teams understand and decode consumers culture and environment as well as specific beauty rituals, needs and unmet desires.

With sunny, hot, humid and polluted conditions, our strong knowledge of Melanin-rich skins and very curly or curly hair types is key to design value winning innovations in every category (haircare, hair coloration, skincare).

In this Zone, we have a strong scientific technical expertise on daily photoprotection, curly hair repair and definition and skin tone & acne management under hot, humid and polluted conditions.

Furthermore, the teams never cease identifying the inclusive & Green Sciences gems in the booming emerging markets' open ecosystems to find the right partners to create the next products that will win our consumers' hearts.



### **Emerging Markets Expertise**

In each of our international Zones, we're leveraging **edgy Scientific Ecosystems** to meet the **beauty needs** and **aspirations** of our consumers.



Biodiversity
Beauty procedures



Agri tech
Biotech scalability
Digital



Agri tech
Biotech scalability
Digital

#### LEVERAGING THE UNICITY OF CONSUMER CLUSTERS

Advanced Repair Solution Photoprotection for hot and humid Climate

Very Curly Hair Manageability Hot and humid Climate Design to value performing Hair Color Inclusive Acne and Skin Tone solutions





L'ORÉAL RESEARCH & INNOVATION

### **North Asia**

L'Oréal has 25 years-old historical presence in China and a strong scientific footprint with its Research Centres in Shanghai (China), Tokyo (Japan) and its labs in Singapore and Seoul (South Korea).

- 32% of the world Beauty market in a Triangle: China (17%), Japan (7%), Korea (2%)
- 41% of the world Beauty luxe market: 64% in Skincare, 36% in Makeup, powered by the Chinese world (58% of the world luxury Skincare)
- 21% of the world Population, China representing 18%. A zone aging in 2040: 34% projected over 60 (vs. 21% in 2022) and 21% projected under 25 (vs. 28% in 2022). China soon to have 33% and Japan 43% of its population over 60 in 2040
- 400 M of middle-class population in China (\$10-50 daily income)
- 9 megacities out of the 33 in the world (over 10 Mn inhabitants, Tokyo 1st)
- 55% of e-commerce in China

In North Asia, we are leveraging the unique strength of 3 key markets through the North Asia 'Beauty Triangle' – namely, China, South Korea & Japan. We are creating powerful synergies between C-Beauty, a fast-rising wave among Chinese consumers who value cultural confidence, premiumization and believe in digitization, K-Beauty, an agile adaptation and creation in Korea with wide-spreading cultural influence through K-content, fast innovation and a strong ecosystem of vendors and suppliers. And J-Beauty, deep into expertise with a culture devoted to the quality of execution, solid science and mature market supervision.

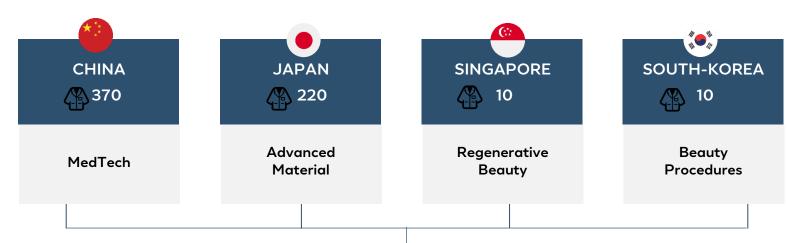
**Our consumer-centric approach** allows to understand ancestral beauty routines, capture the most updated market insights and inspiring trends to invent new holistic consumer experiences by leveraging our strong knowledge on specific Hair straight typology, Hair color, Hair scalp and on Skin tone management, Skin ageing.

We are establishing an ecosystem of powerful partnerships in the Beauty Triangle through working with advanced and specialized local partners to decode local insights and detect local trends through open innovation with local experts and companies.



### North Asia Expertise

In each of our international Zones, we're leveraging **edgy Scientific Ecosystems** to meet the **beauty needs** and **aspirations** of our consumers.



#### LEVERAGING THE UNICITY OF CONSUMER CLUSTERS

Highest Sophistication Advanced Skincare, UV and Makeup Pro inspired Repair & Manageability





### **North America**

With a history spanning **seven decades**, our state-of-the-art Research Center in New Jersey and satellite offices in California leverage the skills of around **600 passionate scientists and experts**, bolstering our research and innovation while playing an instrumental role in **sustaining and enhancing American Heritage Brands globally**.

- Population: 379 million (US 10x larger than Canada)
- Increasing urban and ethnic diversity
- U.S.: Nearing **majority-minority status** (38% POC). The population of people who are from **two or more ethnic groups** is projected to be the fastest-growing ethnic group over the next several decades, followed by Asians and Hispanics.
- Multi-ethnic, Asian, Hispanic groups growing fastest
- Average age: 40.3; Millennials largest group, followed by Baby Boomers
- 4 of world's top 20 priciest cities in the U.S.; 2021 median income: \$70,784

North America's diversity and unique innovation ecosystem make it a center of excellence for the Group.

We leverage our strong expertise in diverse hair types (curls), skin tones, makeup, cleansing, regenerative beauty and procedures, open innovation (biotech), beauty tech, and digital to cater to diverse needs and create exceptional consumer experiences.

With our commitment to open innovation and inclusivity, we aim to strengthen our scientific reputation and be recognized as the U.S.'s most admired R&I center.



### North America Expertise

In each of our international Zones, we're leveraging **edgy Scientific Ecosystems** to meet the **beauty needs** and **aspirations** of our consumers.



Regenerative Beauty



Beauty Tech
Digital

#### LEVERAGING THE UNICITY OF CONSUMER CLUSTERS

Diversity of Hair & Skin Tones
Professional Beauty
Makeup Expertise
Inclusive Hair Color



### **Support Functions**



From closely supporting, monitoring and securing our financial investments in R&l's strategic pillars, to driving our patent intelligence strategy to managing our legal matters and data privacy policies, Administration & Finance is a key department providing essential added-value for R&l's growth and performance.



Dedicated to empowering the L'Oréal Group and its brands with impactful scientific stories, knowledge and experts, R&I Communications & Engagement has a key role to diffuse how the power of science x tech x nature shapes the beauty of the future.



At L'Oréal, we have one People Vision: to be the most inclusive, innovative and inspiring People Driven Company. At R&I, Human Relations teams are dedicated to the recruitment and development of scientific and tech talents around the world, preparing tomorrow's leaders and fostering the emergence of local talent.





## **Human Relations**

#### The teams are our heroes.

At the heart of L'Oréal's wonderful Research & Innovation adventure, 3900 passionate researchers with their cutting-edge skills and knowledge, push the boundaries of science to create the beauty that moves the world. They are the beating heart of the Group and we are dedicated to empowering them with the best tools, learning programs, up-scaling classes and mobility opportunities so they can grow during their career at L'Oréal.

70%

of women at R&I

30%

of men at R&I

30%

of young people hired after their training or apprentice experience at L'Oréal R&I

& INNOVATION

## The R&I Management Committee



Sofie CABOOTER Operational Excellence



Ana KLJUIC L'Oréal for the Future & Green Sciences



Laurence LEBARBANCHON Evaluation Intelligence



Maxime DE BONI North-East Asia



Pascal BERTHE Safety, Regulatory Affairs, Claims Substantiation & Microbiology



**Guive BALOOCH** Open Innovation & Augmented Beauty



Johan AUBERT Digital Transformation



Sanford BROWNE North-America

ZONES



Matthieu CASSIER Emerging Markets (Brazil, India, South-Africa)



Vania LACASCADE Innovation Direction

ANSVERSAL PLATFORMS



Anna ANISIMOVA Administration & Finance



Stéphane ORTIZ Innovation Métiers & Product Development









**BARBARA LAVERNOS** Deputy Chief Executive Officer, in charge of Research, Innovation and Technology





Blandine THIBAULT-BIACABE Human Relations



Cécile MONDELLI-FORRAY Communications & Engagement





**L'ORÉAL** RESEARCH & INNOVATION

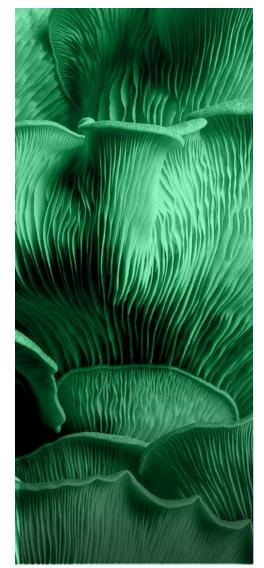
A BEAUTY THAT POSITIVELY IMPACTS





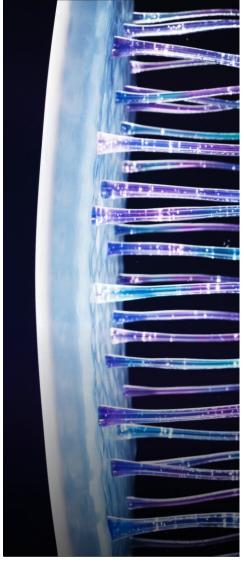
A BEAUTY THAT BOOSTS

A BEAUTY THAT IS PERSONALIZED











L'ORÉAL RESEARCH & INNOVATION







## **Green Sciences Achievements**

**Key Figures 2022** 

97%

of new or renovated products launched in 2022 have an improved environmental or social profile

+80%

of our raw materials newly referenced in 2022 are renewable

97%

of the Group's products are eco-designed

61%

of ingredients are of renewable origin or derived from abundant minerals

82%

of ingredients are readily biodegradable

44

new renewables raw materials

4 Scientific expertise



#### 1st Scientific expertise: Sustainable Cultivation



The first discipline of the Green Sciences is **Sustainable Cultivation**, which uses technology to cultivate plants in an innovative and sustainable way, in order to guarantee supply while preserving the planet's resources, protecting biodiversity and limiting Carbon emissions.

One example of this is the *Centella Asiatica* from Madagascar, which we use for its healing, anti-inflammatory and anti-ageing properties in products like CICAPLAST BAUM B5 by LA ROCHE-POSAY.





The 2<sup>nd</sup> discipline is **green extraction** which enables us to directly extract the most active molecules in plants, such as shea butter, rich in fatty acids, essential elements of skin and hair. The fruit of the shea tree are harvested, washed and stripped of their pulp to obtain the nuts. The nuts are then boiled and shelled to give the kernels.

Shea butter is obtained by pressing and extraction process that preserves its properties, green extraction process preserves its properties and used in OLEO BLEND Technologies, in the new FRUCTIS. .



#### 3<sup>rd</sup> Scientific Expertise: Biotechnology



The 3<sup>rd</sup> discipline is **Biotechnology**, which involves using a living organism such as a plant or a bacteria as a "micro-factory" to create new ingredients.

One example of this is using marine plankton. Vitreoscilla filiformis is the extract of micro-algae which we grow in our biotech plant in Tours. Its antimicrobial and antioxidant properties help the skin strengthen its natural defences while promoting regeneration benefits. It can be found in the product ELIXIR LIVE PLANCTON by BIOTHERM.

#### 4th Scientific expertise: Green Chemistry



Finally, the 4th discipline, **green chemistry**. This is a revised production process which limits the number of stages by using green energy and non-petrochemical solvents such as water.

We use green chemistry for our patented active ingredient Pro-Xylane. This is a sugar molecule derived from the beechwood tree which accelerates cellular renewal, improves skin elasticity, and offers deep-down correction for the signs of ageing. We have succeeded in integrating a 30% concentration into the formula of REPLASTY AGE RECOVERY by HELENA RUBINSTEIN.



#### **Endolysine, A Green Sciences Active**

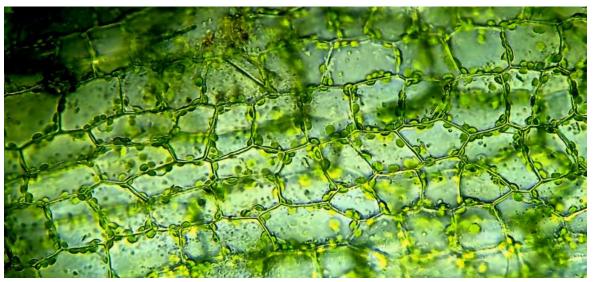


After 3.8 billion years of sustainable R&D, Nature is the most intelligent laboratory of experiences, failure and success, from which we are learning and mimicking strategies to innovate. With our high-tech skills in biotech, we aim to explore the new frontiers of scientific discovery created by the force of nature in order to invent new augmented and unequalled performances.

To illustrate the power of the living world can bring us, let's talk about the recent launch of LIPIKAR MED by LA ROCHE-POSAY. Through our extensive research into the microbiome, we have been able to identify a micro-organism whose action we have reproduced and enhanced using genomics, proteomics and biotechnology. In just a few days, this active ingredient, called ENDOBIOMA, is capable of eliminating the bacteria responsible for cutaneous lesions which cause eczema. This revolutionary active ingredient, which we have patented, was developed in collaboration with the biotechnology startup MICREOS.



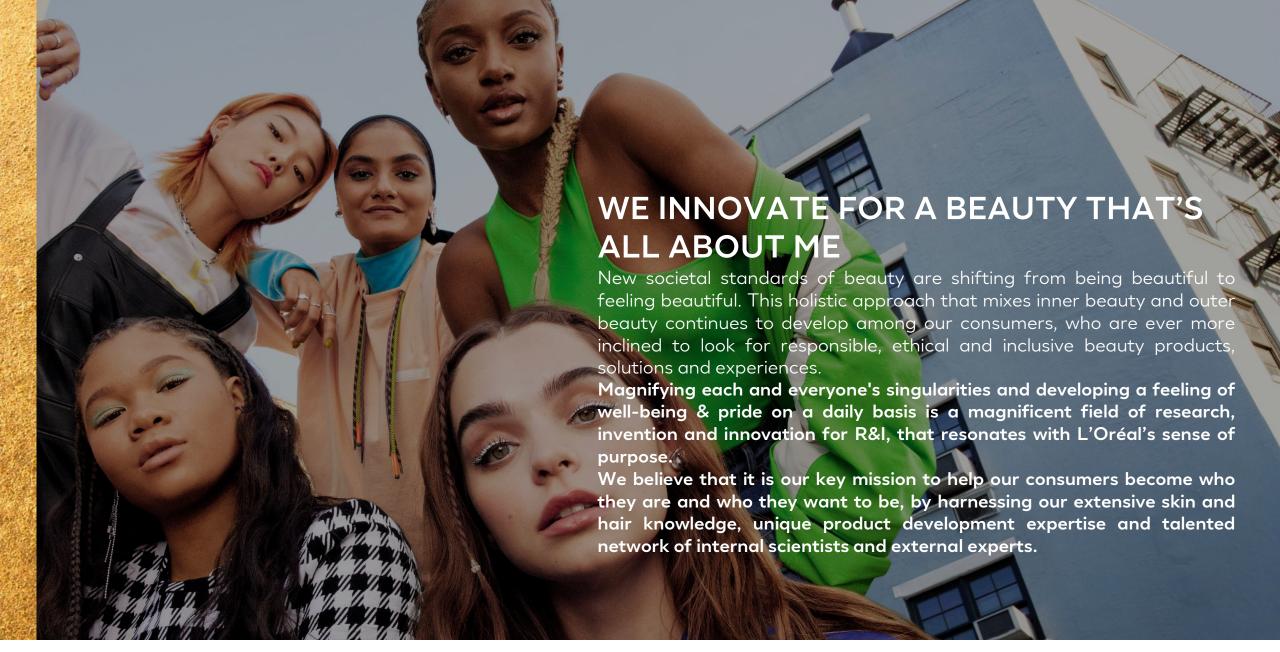
#### Microphyt, A Biotech External Partner



The Green Sciences are also a scientific revolution protecting & preserving nature throughout the whole product cycle: from the sustainable supply of raw materials to the composition of our formulas, while respecting biodiversity, the aquatic environment and biodegradability.

From sustainable cultivation to preserve biodiversity while ensuring security of supply of raw materials to green extraction, which allows the direct extraction of the most active molecules from a natural resource, to green chemistry to obtain molecules that can be developed with a minimal impact on the environment, to fermentation, and more broadly biotechnology, which consists in using the living such as plants or bacteria as "microfactories" to create new ingredients, our scientists are leading this transformation.

For example, we are working with **French startup Microphyt**, a microalgae specialist, to conduct targeted research on these microorganisms. Natural and renewable, microalgae can be used as ingredients, particularly active ingredients, or to inspire biomimetic processes.







## Beauty for All, Beauty for Each

51%

of the Euromonitor study respondents claim that beauty means "looking healthy", "feeling good about yourself" and "having self-confidence".

76%

of people with dark skin say the color of their skin is very important to how they see themselves

2/3

of the world population will have melamine-rich skin by 2040

40 %

of the world population will have curly hair by 2030

1/2

of Gen Z population in the US has curly hair

With our extensive scientific heritage, knowledge and expertise on skin & hair,

we are dedicated to creating the best products and beauty experiences that meet the wonderful aspirations of each of our consumers around the world.

L'ORÉAL RESEARCH & INNOVATION

#### Skinclusivity for All. Skinclusivity For Each



#### The color of our skin has never been as diverse as today.

Considering the global population growth and population mixing, the skin shade palette will continue soaring at an important rate over the next decades. It is then key for R&I to constantly update and measure our consumers' skin shades and undertones around the world. This incredible knowledge allows R&I to develop the most inclusive make-up color ranges for each consumer.

In 2021, we have launched a global TYPOLOGY study to reach all people in their infinite diversity and connect deeply with each individual in real life. The study is conducted in 7 countries (which represent almost 50% of the worldwide population) among all genders, ages, skin tone, hair types, origin, to fully characterize hair & skin across the world on 15,000 consumers. This unique dataset will help us always be more precise to meet our consumers expectations around the world.

#### The Science of Color & Shades



In 2020, we conducted a multi-cultural beauty study to deepen our skin tone knowledge. We tested in 7 countries on 4 continents and measured the skin tones of over 3000 women. We then identified six global skin tone clusters and co-created the most relevant shade ranges with consumers and make up artists.

Furthermore, we are also pioneering the foundation shade naming system collaborating with renowned experts to invent a new numerical foundation shade name system fully embracing our inclusive approach by measuring the lightness, the hue and the chroma for each skin tone.

The L'ORÉAL PARIS TRUE MATCH SUPER-BLENDABLE MAKEUP has 47 different shades in warm, cool, and neutral undertones, ranging from fair to deep. And each product name has been defined according to the undertone and the lightness of the skin tone shade.

#### Our Unique Hair Scientific Knowledge



In 2030, 40% of humanity will have curly hair due to the mixing of populations. For years, women have been straightening their hair to fit a beauty archetype. Embracing their curls is now essential to express their personality.

Until recently, it was the ethnic origin that used to classify world's different hair type: Asian, African or Caucasian. Today, we are more inclusive than ever as we have characterized a 1-8 typology scale to classify hair typology based on a very precise measurements of the morphological parameters on the fiber to address the different hair tensions needs with specific beauty hair routines.



The curl scale established by L'Oréal Research & Innovation comprises 8 categories from the straightest (type I) to the curliest (type VIII) hair.



#### **Embracing the Curl Movement**



R&I is innovating for the curly T4 and very curly T5+ types with solutions to manage entanglement and the frizz effect, to stop hair shrinkage and invent a new generation of hair relaxers protecting the curls and the scalp.

For the curly T4 hair consumer, **KERASTASE CURL MANIFESTO** is a game-changing collection: 87%\* less breakage, 83%\* more hydrated and 81%\* more defined with perfect shape and movement with biomimetic ceramide.

It took 4 years of research to create this biomimetic ceramide. And we discovered that it fits perfectly between the scales of fragile hair. It reinforces the cohesion of the scales to restore softness, smoothness and strength.

#### Enabling Self-Expression for Beauty Lovers with Limited Hand & Arm Mobility



An estimated 50 million people globally live with limited fine motor skills. This makes some daily gestures, like applying makeup, challenging.

Under development by our scientists and engineers, HAPTA is a handheld, ultraprecise smart makeup applicator for users with limited hand and arm mobility, offering them the ability to steadily apply lipstick at home. HAPTA will incorporate technology originally created by Verily to stabilize and level utensils to give people with limited hand and arm mobility the ability to eat with confidence and independence.

The key to HAPTA is its combination of built-in smart motion controls plus customizable attachments that give the user an improved range of motion, increased ease of use for difficult-to-open packaging, and precision application that is otherwise hard to achieve to help individuals feel confident, independent, and empowered to enjoy the self-expressive power of beauty.





## WE INNOVATE FOR A BEAUTY THAT PROTECTS

As climate change is severely felt around the world with extreme heat waves, wildfires, high pollution peaks, water scarcity, the lines between health & beauty are becoming thinner. The impacts of these rapid changes on our body will be major challenges to address to limit irreversible or considerable skin and hair damage.

So more than ever, we at L'Oréal Research & Innovation, are supporting the Group's ambition and responsibility to harness scientific expertise to invent products & experiences protecting our skin & hair health to raise awareness and educate its consumers.







#### L'ORÉAL RESEARCH & INNOVATION

## Photoprotection, Skin Health

#### Sun Damage, a Major Public Health Issue

2 to 3 million skin cancers

are diagnosed every year around the world.

80%

of aging signs (pigmentation and wrinkles) are caused by exposure to the sun

15%

Do not use sunscreen at all\*

88%

of the people interviewed in our worldwide study do not systematically or often use protection\*

57%

of the people interviewed regret not having <sup>2</sup>better protected better their skin from the sun over the years\*

#### Pioneering photoprotection for more than 85 years

With our unique scientific knowledge of skin, more than **350 scientific** publications, we have spent decades developing a range of patented filters.

A large-scale epidemiology study on 17,000 people in 17 countries (2021) HELIOS (Health Education and Learning for Improved Outdoor Sun-protection)

## Pioneering photoprotection for more than 85 years

1935 : 1<sup>st</sup> patent of sun protective oil.

1982: 1st patent on Mexoryl SX 1989: 1st patent on Mexoryl XL 1993: 1st products with Mexoryl SX 1999: 1st products with Mexoryl XL **2018**: evaluation of the degree to which UV filters contribute to the bleaching of corals.

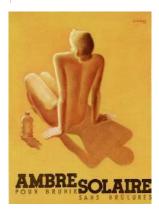
**2019**: Netlock technology – Polymer capable of gelling and stabilising sun filters.

2022: Mexoryl 400 protecting from UVAs

**1930 - 1970**PASSIVE TANNING

**1970 - 1990** ACTIVE TANNING 1990 - 2000 AWARENESS OF SKIN DAMAGES 2000 - 2020 HIGH PROTECTION & PRACTICALITY

1936:: Launch of AMBRE SOLAIRE, the very first tanning oil with a filter.



1969: Vichy launches BAINS DE SOLEIL, the first complete range of sun care products.

1974: ANTIRIDES SOLAIRE by

Biotherm, combination of a sun protection and anti-aging.

1989: AMBRE SOLAIRE is relaunched with Garnier and becomes an iconic range of solar products.



1993: ANTHELIOS by La Roche-Posay, major innovation in photobiology. 2000: Lancôme launches UV EXPERT in Japan.



2001: Prevention campaign by Vichy to warn of the dangers of the sun for children: CAPITAL SOLEIL.
2020: L'Oréal Paris launches UV DEFENDER in Brazil, a care product that combines sun protection and the best skincare active.

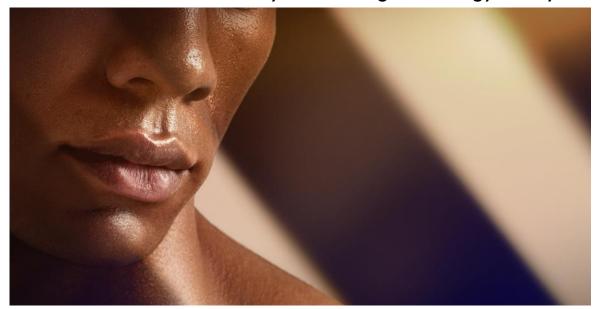
**2022**: Launch of UVMUNE 400 by La Roche Posay, a revolutionary filter that protects against UVA+UVB+UVA ultra-longs.





C1 - Internal use

#### Skin Health: Our Revolutionary UV Filtering Technology in 30 years



95%

of UV radiation that reaches the Earth is UVA<sup>2</sup> 30%

of UV radiation is in the last 20 nm of the spectrum, between 380 and 400 nm (ultra long UVA) 20X

the skin is 20 times more exposed to UVA than to UVB radiation<sup>3</sup>

After ten years of research & 25 patents to design Mexoryl 400, L'Oréal made its biggest breakthrough in solar innovation in 30 years in 2022 with UVMUNE 400: our first filtering technology to provide effective protection against the 30% of solar UV radiation that was not properly filtered until now, namely ultra-long UVA rays between 380 and 400 nm. UVMUNE 400 can thus protect against UVAs' effects such as oxidative stress; pigmentation; modification of genes involved in skin cancer; immune response disruption; damage caused by photopollution; photoaging signs such as wrinkles, loss of skin elasticity, and spots.

La Roche-Posay is the first L'Oréal brand to launch UVMUNE 400 through its ANTHELIOS franchise.





#### Skin Health: Daily Photoprotection, the New Normal



"Protection is prevention and now prevention is moving towards correction". David Amar, Skincare Expert at R&I.

Considering the impacts of sun exposure and climate change on our skin, it is key for R&I to harness daily photoprotection in skincare and make-up products formulated with UVA and UVB filters which provides broad spectrum protection from sun rays.

By combining powerful anti-aging actives (such as Vitamin C, Vitamin E) with a filtering technology and an optimized formulation system called Netlock Technology, L'Oréal R&I is pushing skincare daily sun protection to the next level. Thanks to the Netlock Technology, the filters are encased in fine droplets of gelled

oils, which allow the formation of a continuous and flexible film on the skin's surface. The ultra-thin film created is invisible, leaving no trace or greasy or sticky effect on the skin. The skin feels fresh and moisturized with products such as L'Oréal Paris REVITALIFT CLINICAL.





# WE INNOVATE FOR A BEAUTY THAT BOOSTS

As the world population is growing older and the consumers' expectations and behaviors are changing, new definitions of "age" are emerging around the world, from reversing the appearance of ageing to well-ageing to improving life-long health.

Tomorrow will be about designing longevity, which means living younger and healthier longer. The adoption of more holistic health and beauty routines geared towards predicting, intercepting and even reversing aging.

The long-term aim is to extend the human health span rather than the lifespan, so that people live healthier for longer.

At R&I, we are combining our scientific knowledge on the exposome, skin regenerative biology and tech to propel the science of aging into the future.





# Longevity Health & Beauty Management is the Future of Ageing

1,4 Billion

of 60+ people in 2030 worldwide

63%

of Americans believe investing in Hyper Wellness activities, services and products can help them save on the long-term financial costs of the effects of aging and sickness

\$333 billion

is the forecasted global aesthetic medicine market size by 2030 versus \$99.50 billion in 2021 1 for 2

By 2050, for every child there will be two elderly persons

40% of Gen Z

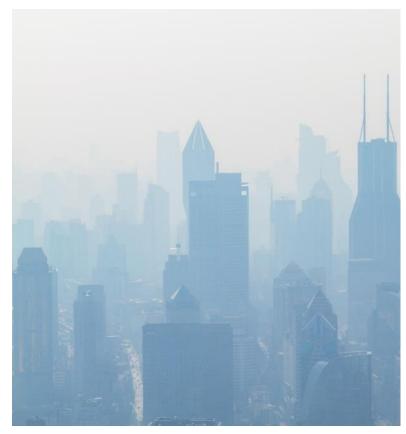
have a 10-step skincare routine. In America, under 30 underwent more cosmetic surgery procedures than those over 50

84,6%

of South Korean women has experienced an aesthetic procedure once in their life



#### Our Exposome Knowledge on Skin



#### **EXPOSOME EXTERNAL FACTORS**

Every day, our skin is impacted and fragilized by external factors such as **UV** (UVA & UVB), **climate** (temperature, humidity), **pollution**, **visible light**, **allergens** (pollen, chemicals) and **mechanical stress** (procedures, scars)



**EXPOSOME INTERNAL FACTORS** 

Our skin is equally impacted by internal factors from age, sex, phototype, lifestyle (physical activity, smoking), sleep (UVA & UVB), diet, mental state (stress, emotions) and hormonal changes (puberty, pregnancy, menopause)



CLINICAL IMPACTS OF THESE EXTERNAL & INTERNAL FACTORS

The range of impacts on our skin can vary from **skin aging** (wrinkles, loss of firmness), **pigmentary disorders** (dark spots, dull complexion), **acne, reactive skin** (sensitive skin, eczema, redness), **dry skin** (tightness), **tired look** (dark circles, eyes bags) and **instable skin** 



#### Skin Science



**Skin aging can begin as early as your twenties,** with mild signs such as the appearance of fine lines. The natural aging process accelerates with time and the skin's production of collagen decreases. Collagen works to support the skin by giving it the firmness and elasticity it needs to function properly. With this natural decrease, the skin will tend to lose its suppleness and even its radiance. Furthermore, the impacts of the external & internal exposome factors accelerates the ageing signs.

With RÉNERGIE H.C.F. TRIPLE SERUM, Lancôme brings together in a single antiaging serum three ingredients deemed incompatible in a high-performance triple dose: Hyaluronic Acide, Vitamin C+Niacinamide, Ferulic Acid. It targets visible improvement of ageing signs: volume Loss, wrinkles and dark Spots.

Lancôme also launched a **revolutionary skincare beauty device, ABSOLUE DUAL-LED YOUTH TREATMENT**, that uses patented breakthrough LED light therapy and simultaneously precisely dispenses luxury formula to dramatically improve skin texture. The device stimulates skin cell activity with two optimal light wavelengths and dosage, while boosting collagen production, which rebuilds and creates smooth skin.

## LORÉAL

& INNOVATION

#### **Hormonal Science**





Why change your skincare routine with menopause? As women approach 50, female hormones stop being produced, which leads to many changes in the body: weight gain, hot flashes, sleep disorders, mood swings, but also structural changes in the skin. Indeed, following the sudden drop in estrogen hormones, skin aging intensifies. Wrinkles are more pronounced, the skin becomes thinner, looser and drier, the complexion is dull. To counter these effects of menopause on the skin, it is important to provide the skin with cosmetics enriched with redensifying, replenishing, plumping and moisturizing active ingredients to restore its firmness and radiance.

**R&I** and Vichy have entered in a strong partnership with Clue, the menstrual tracking app with 12 million users in 190 countries, to deepen knowledge on the relationship between skin health and the menstrual cycle.

With VICHY NEOVADIOL skincare range, the lack of radiance, dryness of the skin, loss of volume is fought thanks to Pro-Xylane, Vitamins B3-CG-E and Omegas 6-9 with a beauty routine for the new specific needs ok the skin.

#### Our Exposome Knowledge on Hair



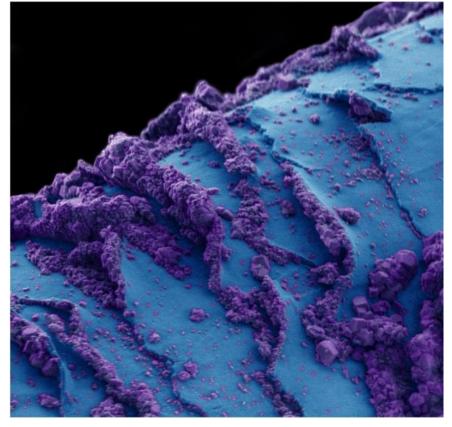
#### **EXPOSOME EXTERNAL FACTORS**

Every day, our hair is impacted and fragilized by external factors such as **UV** (UVA & UVB), **climate** (temperature, humidity), **pollution, water quality** (minerals, metals), **chemical** (oxidation), **physical** (heat, devices) and **mechanical** (brushing, extensions)



**EXPOSOME INTERNAL FACTORS** 

Our hair is equally impacted by internal factors from age, sex, heredity, location, medical treatments, scalp ecosystem (flora secretions), lifestyle (physical activity, smoking), sleep nutrition, diet, mental state (stress, emotions) and hormonal changes (puberty, pregnancy, menopause)



CLINICAL IMPACTS OF THESE EXTERNAL & INTERNAL FACTORS

The range of impacts on our hair can vary from dry hair, dull hair, breakage, hair sensitive to chemical treatments, lack of vascularization, delay in growth, pigmentation disorders, dry or sensitive or oily scalp and dandruff



#### Hair Health: Detoxifying Our Hair from Metal Particles



Like our skin, our hair sometimes needs a good detox! As water quality is changing, metal levels in water vary depending on the environment. Wash after wash, metal particles accumulate inside the hair fiber, affecting more specifically porous hair. In addition to increasing the risk of breakage, metal particles, especially copper, react with the main active ingredients in color and bleach products, leading to unreliable color results.

#### Our latest breakthrough innovation with L'Oréal Pro: Metal Detox range.

At R&I, we collaborated with loannina University for 7 years since they are the experts in biomimicry and analytical techniques. From this knowledge, we were able to develop a breakthrough solution capable of neutralizing the metal present inside hair. Our solution is Glicoamine, a patented molecule that is small enough to penetrate inside the hair fiber, where it targets metal particles and uses its chelating properties to bond with them.





#### Hair Reboost Science



For decades, L'Oréal R&I has developed a deep and precise knowledge of the structure of the Hair fiber: cuticle is the external envelop of the hair made of a stack of flattened cells strongly bonded together and anchored on the cortex periphery creating scales. Over time, aggressions as frictions when grooming, washing, UVs, heat, pollution, etc. little by little weaken the hair fiber: the scales' edges lift, are torn apart, the cuticle thickness decreases. These damages make our hair rough, heavy stiff, lacks shine, movement and frizz appear: these are signs of "dehydrated hair", as perceived by consumers.

With L'ORÉAL PARIS ELSEVE HYALURON PLUMP, formula elaborated with a combination of actives (Hyaluronic Acid, caring and protector agents) are cleverly dosed for a better balance between nourishing lipids and surface perfectors.

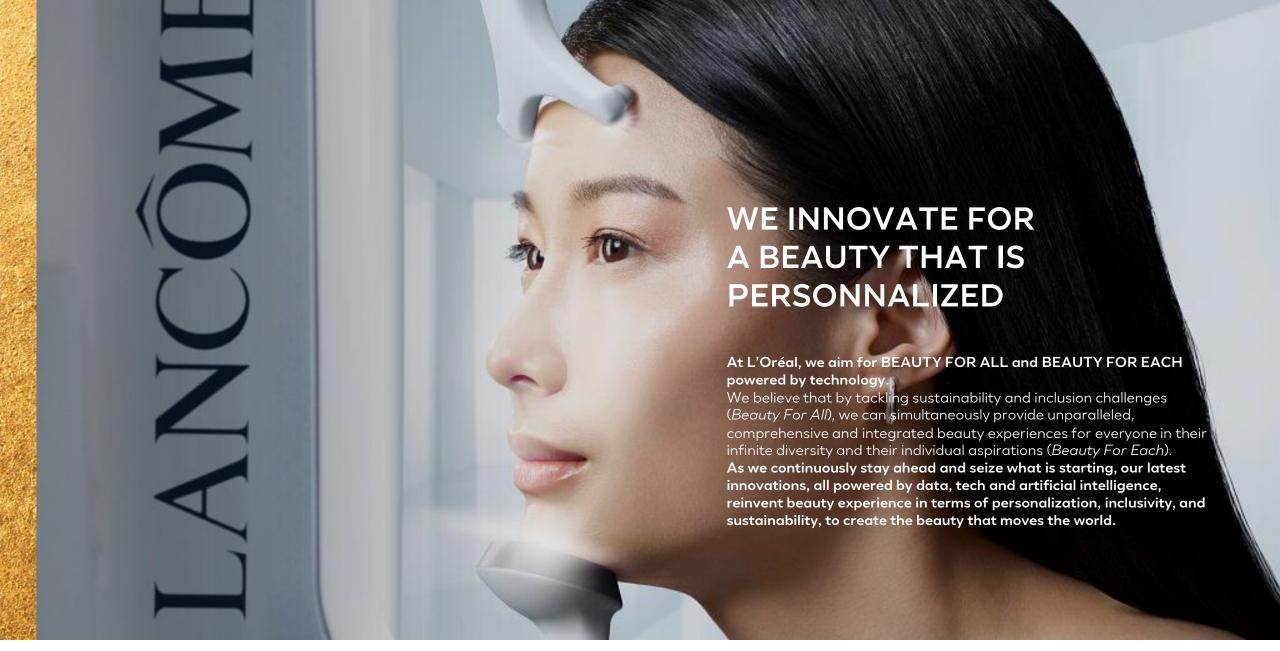




L'Oréal researchers have observed that premature hair loss created a thickening of the sheath around the hair follicle. This thickening appears because of the accumulation and rigidification of collagen and inhibits the hair root from anchoring itself deeply and solidly in the dermis. The hardened sheath compresses the bulb, inhibiting microcirculation that carries nutrients to hair. Insufficiently nourished, the miniaturized follicle produces a thinner, weakened fiber. Hair falls out prematurely. The hair-fall is defined by more than 100 strands per day falling from the roots due to biological reasons (stress, hormones, diet...) or by hair falling from mechanical breakage (brushing, combing,.)

With KERASTASE GENESIS collection a dual action fortifying system professionally formulated with specific actives (Edelweiss native cells, Ginger root extract, Aquaxyl,Viperide) help to strengthen hair and reduce hair breakage for a fiber reinforcement and stronger hair.









## The Power of Ultra-Personalized Beauty

1,400

services available online

22,000

skin tones analyzed by algorithm to create bespoke foundation shades for consumers

40 million

uses of our digital services, from virtual try-ons to diagnosis tools to skin analysis

6

awards at the Las Vegas Consumer Electronics Show in 2023

#### L'Oréal is pioneering Beauty Tech.

The Group and scientists' experts use technology, data and artificial intelligence to develop services that deliver an unrivalled degree of personalization.



#### Pioneering Personalization with New Beauty Experiences



We use the power of technology to deliver authentic, creative solutions tailored to individuals. Personalization is in everything we do, from recommendations to skincare or makeup products, transforming our consumers' beauty experience.

With Lancôme for example, we have developed unprecedented makeup services. Its E-Shade Finder uses a selfie video and an algorithm able to **analyze over 22,000** skin tones to create bespoke foundation shades for consumers.

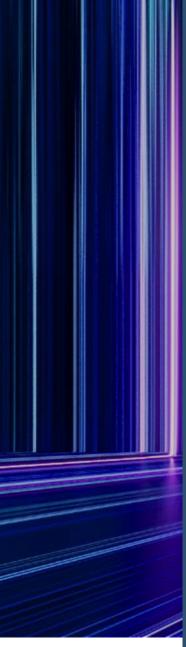
In skincare, the Lancôme Skin Screen analysis service uses artificial intelligence to measure 13 clinical parameters of skin health, such as wrinkles, firmness and UV damage. Inspired by clinical studies and dermatologist approved devices, Skin Screen helps beauty advisors to establish a "diagnosis" and provide personalized advice to consumers for a customized routine. This cutting-edge service was developed over the course of 20 years of research, which comprises 15,000 photos of clinical signs of skin health gathered in compliance with responsible personal data processing standards.

#### When Science x Tech Reinvent How to Choose A Fragrance



Olfactory sensations are complex. As is understanding and expressing your preferences. With Scent-Sation, R&I and Yves Saint Laurent with our external partner Emotiv are helping consumers choose their fragrance wisely.

We developed a cutting-edge experience by combining technology and neuroscience to deliver personalized fragrance advice. Using a headset inspired by electroencephalography (EEG) technology, Scent-Sation records and analyses consumers' emotional responses to different fragrance families, then recommends the perfume that suits them best. Launched at World Expo 2021, this groundbreaking innovation provides an unprecedented, sophisticated and ultrapersonalized experience for consumers: luxury incarnate.



PART **4** 

L'ORÉAL RESEARCH & INNOVATION



#### L'ORÉAL RESEARCH & INNOVATION

## **5 Innovation Pillars**

5 transformational programs diffused within R&I's multi-polar organization to empower our scientists with a clear, inspiring and challenging roadmap.

#### **INCLUSIVITY**

FROM ARCHETYPES TO MAGNIFYING ALL OUR SINGULARITIES

#### **GREEN SCIENCES**

FROM TRADITIONAL CHEMISTRY
TO THE MARVELS OF GREEN SCIENCES

#### **AUGMENTED BEAUTY**

FROM UNREACHABLE BEAUTY DREAMS
TO PIONEERING AUGMENTED BEAUTY SOLUTIONS

#### **AUGMENTED RESEARCHERS**

FROM STANDARD WAYS OF WORKING
TO A NEW DIMENSION PROPELLING SCIENCE X TECH

#### **WORLD OF CO. & OPEN INNOVATION**

FROM INNOVATION TO CO-INNOVATION WITH THE WORLD

#### **INCLUSIVITY**

#### From Archetypes to Magnifying All Our Singularities



### UNLEASH HAIR'S FULL POTENTIAL

At L'Oréal R&I, the science of hair is part of our heritage and continues to be explored to meet the infinite diversity of hair types in the world.

Whether straight, curly or kinky, all hair deserves its own routines and care.



## PRAISE YOUR UNIQUE SKIN TONE

At L'Oréal R&I, we believe that all skin types and tones are beautiful and deserving of representation. We are convinced we have a great responsibility in creating a more inclusive and diverse beauty industry that embraces all skin colors and types and promotes self-confidence.



#### 70 IS THE NEW 50!

Boomers are the biggest and the fastest growing population. It's a generation defined by change, and they are tearing up the rulebook and redefining what it means to age. As scientists, our duty is to decode the boomer's skin and hair to create adapted and integrative routines, product with unequalled performance and new sensory experiences.



#### **HACK THE GENZ!**

Gen Z is a tech-savvy and socially conscious generation that seeks transparency, authenticity, and sustainability in their products. We are dedicated to meeting several challenges when it comes to understanding their needs, including high expectations in terms of personalization and performance, rapidly changing trends, and digital friendly experiences.



#### REVEAL BEAUTY OVER GENDER

L'Oréal is the leader in the Men's fragrance and skincare markets. However, a growing need arises for products that cater to all gender expressions identities. For L'Oréal R&I, it means ensuring that beauty products and services are desirable and safe for all individuals.

#### **GREEN SCIENCES**

#### From Traditional Chemistry to the Marvels of Green Sciences



#### SUSTAINABLE CULTIVATION

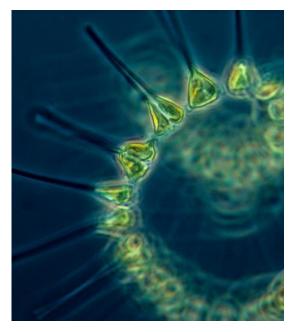
It refers to the cultural practices and techniques aiming to manage water resources, respect biodiversity and soil quality, limit land occupancy footprint and carbon emissions while providing biomasses for innovation.

We are investing in new cultivation methods: wild harvesting, field cultivation (regenerative agriculture, agroforestry for example) and integrated cultivation like aquaponics.



#### **GREEN EXTRACTION**

Green Extraction is an eco-respectful technology leading to a final ingredient without any (bio)chemical transformation\* from natural resources (plant, algae, mushrooms, microorganisms, cells or abundant mineral). Rosewood used in LANCÔME'S SERUM CONCENTRE INTENSIF ABSOLUE is obtained through this process



#### **BIOTECHNOLOGY**

Biotechnology makes it possible to obtain an ingredient through the culture of microorganisms (bacteria, yeast, microalgae, fungi) or of plant cells in bioreactors or in a controlled environment, to preserve natural resources. Thanks to lactic bacteria we have succeeded in producing a biotech **Hyaluronic Acid**, a star ingredient in Cosmetics.



#### **GREEN CHEMISTRY**

This expertise favors non-petrochemical solvents and integrates notions of environmental impact, of energy reduction and of sustainability of its products and processes with the least possible waste. Through Green Chemistry, we were able to create a green **Vitamin C** which was integrated in GARNIER's VITAMIN C SERUM.

<sup>\*</sup> Except particular case of enzymatic extraction action on sugars and proteins.

#### **AUGMENTED BEAUTY**

#### From Unreachable Beauty Dreams to Pioneering Augmented Beauty Solutions





Programmatic Beauty is about using technology and data to provide targeted, personalized diagnosis and solutions. The goal of Programmatic Beauty is to create a holistic approach to beauty that is backed by scientific data and analysis such as Skin Screen by Lancôme, an exclusive advanced skin analysis service inspired by clinical studies.



GREEN TECH BEAUTY

Green Tech Beauty represents a growing opportunity towards using technology to create sustainable, safe, and effective beauty products, while also minimizing the impact on the environment such as the L'Oréal Water Saver, a technology that makes sustainable water use available to everyone.



AUGMENTED TOOLS

At L'Oréal R&I, we believe physical objects or innovations and augmented tools are the key to reach new levels of beauty results and performance, such as the Brow Magic, our new tool that allows to achieve natural, precise microblading results at home.



PRECISION BEAUTY

Precision beauty refers to the use of technology and data to analyze an individual's unique needs and preferences. This can include using data on skin type, hair texture, emotions and lifestyle habits to create personalized skincare, haircare and fragrance products, such as Scent Sation by YSL Beauty, the first In-store fragrance finder based on neuroscience.



AUTONOMOUS BEAUTY

Autonomous beauty refers to the use of artificial intelligence (AI) and other advanced technologies to automate beauty routines and simplify the process of selecting and using beauty products, such as HAPTA, a handheld, ultra-precise smart makeup applicator for users with limited hand and arm mobility, offering them the ability to steadily apply lipstick at home.



#### **AUGMENTED RESEARCHERS**

#### From Standard Ways of Working to a New Dimension Propelling Science x Tech



#### **DATA**

We put data at the center of our strategy to move from data considered as a simple consequence of our research activity to data that becomes a lever for innovation. Data is turned into truly valuable assets and enables us to create performant predictive models or new innovative formulations. In 2023, L'Oréal R&I developed Consumer Loop, an

In 2023, L'Oréal R&I developed **Consumer Loop**, an Al-powered semantic and quantitative analysis platform for consumer reviews. Now, Marketing and R&I teams are able to simultaneously extract product classifications, analyze comment content, erase bias, and more, to create new formulas and improve products.



#### DIGITAL

Digital takes the data that's available, processes it to empower our products and services creation. Al, machine learning and algorithms allow us to test our hypotheses virtually before doing them in real life. These digital assistants will predict stability, microbiology, safety, performance...

For example, our scientists are supported by **eRawMaterial**, a digital tool that lists physicochemical properties of our raw materials.

It allows our researchers to have full access to this data and use it as a single source of truth about those raw materials.



#### **TECH**

Tech is the powerful leverage to improve our productivity, product safety and quality while accompanying our researchers and constantly accelerating their innovation capability. It is the key to grow our scientific heritage, and to propel us as the company of the future.

For example, on a daily basis, our scientists are powered by the robot RALF (Flexible Laboratory Assistant Robot). It is a modular platform that works with an operator to prepare and process hair strands. It brings together multiple expertise applied to hair treatments (evaluation, physical measurements, hair knowledge, mechatronic prototyping, robotic programming, IT and security, etc.).

#### **WORLD OF CO. & OPEN INNOVATION**

#### From Innovation to Co-Innovation with the World



#### **ACADEMICS MASSACHUSETTS INSTITUTE OF TECHNOLOGY**

We now have a membership agreement with their Industrial Liaison Program, enabling us to work side-by-side with MIT's endless areas of expertise.



**TECH PARTNERS VERILY** 

Verily is the world leader in precision health tech. Together we established the first of its kind cohort dedicated to beauty to decipher the mechanisms of hair and skin aging and to support the product and strateav development of new precision technologies for beauty.



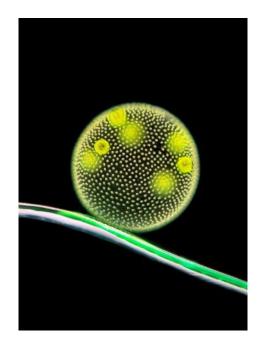
**TECH PARTNERS BREEZOMETER** 

One of the world's most innovative climate tech companies. Thanks to knowledge incredible their of environmental information like Brow Magic, the first handheld, air quality, pollen and UV , we can lightweight, electronic brow uncover new insights on how the make-up applicator. environment affects skin aging.



**TECH START-UP** PRINKER KOREA

Korean micro-printing startup we took shares into for our cutting-edge innovation,



**BIOTECH START-UP MICROPHYT** 

This France-based biotech startup produces natural active ingredients from microalgae. A huge source of active and potent new ingredients for our cosmetic formulations.

#### **COGNITIVE SCIENCES**

Cognitive Sciences open up new realms of innovation and can ensure the well-being of people and the planet. And we believe they have the power to enhance beauty experiences with unprecedented emotional value and behavioral impact and enable L'Oréal brands to create outstanding, desirable and memorable beauty experiences like never before. We are opening 4 Cognitive Sciences Laboratories in the world to explore this exciting scientific territory.

#### 4 platforms driving our new ways of thinking, acting and innovating



**EMOTION** 

Understanding what emotional evocations are linked to senses, identifying the best ways to track emotions during a beauty experience.



MULTI-SENSORY PERCEPTION

Exploring the role and the power of each sensation (texture, sound, shape and color, fragrance) and decoding the interactions between them, understanding how to "play" with sensory synergies in a beauty experience, creating a stimuli library and a digital platform for sensory design.



#### **MEMORY**

Understanding the drivers of a memorable experience and how emotion and memory interact, creating guidelines to design a memorable experience and a method to capture the memorability of an experience.



**BEHAVIOR** 

Understanding the mechanisms behind intuitiveness and the drivers of behavioral changes in beauty, implementing the best digital tech to capture behaviors and deploying guidelines to design intuitive experiences.

