

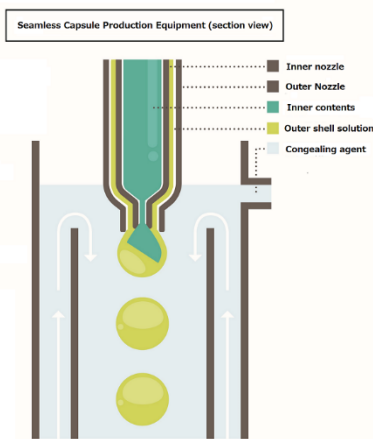
# L'ORÉAL

Kawasaki, 15 July 2022

## L'Oréal Research & Innovation and Morishita Jintan Successfully Develop Cutting Edge “Active Delivery Capsule”, L'ORÉAL's First Capsule Made of Plant-Derived Active Cosmetic Ingredient: Environment-Friendly Technology Employed to Concentrate Active Ingredient

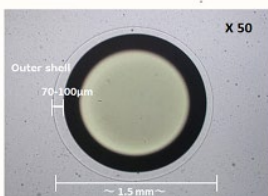
The L'Oréal Group is the world's largest cosmetics company, and its research and innovation arm in Japan, the Nihon L'Oréal Research and Innovation Center (Laboratory: Kawasaki City, Kanagawa Prefecture, Director: Amit Jayaswal), has successfully developed the Active Delivery Capsule using a plant-derived active cosmetic ingredient through joint research with the pharmaceuticals manufacturer Morishita Jintan Co., Ltd. (headquartered in Osaka City, Osaka; Representative Director and President: Yuji Morishita). The capsule shell contains a high concentration of this active ingredient, and it also encapsulates various other active ingredients to protect them from oxidation and degeneration, making possible the long-term preservation of performance and stability. Conventional capsules served only to enclose active ingredients within their shells, but the newly developed capsule is the world's first seamless capsule with a shell composed of the active ingredient as a major component.

### ■ Seamless capsule made of a plant-derived active cosmetic ingredient



Outer shell  
Myrothamnus flabellifolia extract  
Agar + So  
Inner contents  
Vitamin E,  
etc.

### Active Delivery Capsule Microscopic image (x50)



*Myrothamnus flabellifolia* is a plant found in southern Africa. Also called the resurrection plant, its leaves fall off as water is lost during the dry season, and it remains in an air-dry state for an extended period. But once the rain comes and the plant is rehydrated, it springs back to its original state within a few hours. Due to this regenerative property, the plant has been used in traditional medicine in Africa. Today, its tolerance to extreme environments is garnering attention, and interest in the plant as a cosmetic ingredient is also increasing.

*Myrothamnus flabellifolia* extract was combined with agar and sodium alginate to create a capsule using Morishita Jintan's seamless capsule technology. The Active Delivery Capsule containing the plant extract in its shell can be used to encapsulate active cosmetic ingredients such as fat-soluble vitamin E and vitamin C derivatives, as well as ferulic acid, which is highly antioxidant but unstable. The outer shell fully protects the active ingredients inside, so that they can be delivered freshly. Such an advanced delivery technology has no precedence. With a shell whose thickness was reduced to a minimum through repeated trials, the Active Delivery Capsule is easily breakable with pressure such as spreading on skin by fingertips or discharge from the pump of a cosmetics container, and it is more transparent. In addition, it has improved usability as it does not produce noodles\* when applied to the skin, as is often the case with conventional capsules.

Kazuhiko Maruyama, researcher of the L'Oréal Research and Innovation Center's Skincare Development Laboratory describes the development: "In order to add the active cosmetic ingredient to the product in as concentrated a form as possible, we thought of incorporating it in the capsule shell. Thanks to Morishita Jintan's advanced technical capabilities, we were able not only to concentrate an active cosmetic ingredient in the capsule shell for the first time ever, but also to develop, by enclosing other active ingredients inside. By adjusting shell thickness minimum, the capsule has met expectations as a cosmetic ingredient in terms of its functionality, as well as in its tactile properties when applied to products. When a formula containing this capsule was used by Asian women, 90 percent or more of them gave high ratings on how they felt when applied it to the skin."

\*Noodles: String-like solids that may form due to abrasion when a cosmetic product is applied to the skin.

#### ■ **L'Oréal's new value: Environment-friendly and sustainable technology development**

The newly developed Active Delivery Capsule is made using an extract of plant origin and agar, a natural ingredient, as well as sodium alginate, a nature-derived ingredient, through a production process with reduced environmental impact involving no organic solvents. Furthermore, the production plant where the capsules are manufactured is ISO14001 certified, and by installing a cogeneration system that uses natural gas, a clean fuel, the plant is reducing its CO<sub>2</sub> emissions and also addressing air pollution.

The Active Delivery Capsule is a cosmetic material that entirely conforms with the L'Oréal Group's commitment toward 2030 as stated in "L'Oréal for the Future", the sustainability program that the Group is pursuing.

#### ■ **Product development harnessing Japan's ecosystem: Joint research between a pharmaceutical manufacturer and a cosmetics manufacturer**

The L'Oréal Group's launched research and development activities in Japan in 1983, and since then, it has conducted not only product development but also research from a multitude of angles on Japanese skin and hair, society and culture, makeup customs, and other subjects. The L'Oréal Research and Innovation Center has been creating attractive products to distribute in markets in Japan and other parts of Asia, as well as across the world, by adopting Japan's advanced technology through collaborations with the country's universities and research institutes, and also companies with various technologies. In this first-time collaboration with pharmaceutical manufacturer Morishita Jintan, the seamless capsule technology that was being used in the pharmaceutical and food sectors was applied to cosmetics for successful development of the new Active Delivery Capsule, which has a shell consisting of the active ingredient of the cosmetic product itself. Matthieu Cassier, who supervised the project, comments on the joint research: "We are pleased that we were able to apply the innovative Active Delivery Capsule technology to a L'Oréal product through joint research with Morishita Jintan, Japan's leading pharmaceutical manufacturer. This partnership is an important milestone in our efforts to consistently provide consumers with cutting-edge performance."

L'Oréal will continue development utilizing the Active Delivery Capsule technology together with Morishita Jintan. Through sustainable technological development friendly to the earth's environment, an initiative that it is pursuing, L'Oréal will go on creating products to ensure healthier and more beautiful skin for all consumers.

The newly developed Active Delivery Capsule will be used in the L'Oréal Group brand Armani Beauty's Crema Nera Reviscentalis Meta Concentrate, which is planned to be released this fall.

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#### **L'Oréal Group**

L'Oréal has devoted itself to beauty for over 100 years. With its unique international portfolio of 35\* diverse and complementary brands, the Group generated sales amounting to 27.99 billion euros in 2020 and employs 85,400 people worldwide. As the world's leading beauty company, L'Oréal is present across all distribution networks: mass market, department stores, pharmacies and drugstores, hair salons, travel retail, branded retail, and e-commerce. Research and Innovation and a dedicated research team of 4,000 people, are at the core of L'Oréal's strategy, working to meet beauty aspirations all over the world. L'Oréal sets out ambitious sustainable development goals across the Group for 2030 and aims to empower its ecosystem for a more inclusive and sustainable society.

Note: \*According to the L'Oréal Annual Report. <https://www.loreal.com/>

## L'Oréal Research and Innovation Japan

L'Oréal's research and innovation center in Japan was established in 1983, and today, L'Oréal Research and Innovation Center (located in Kawasaki City; headed by Amit Jayaswal) serves as a strategic base for innovation. It boasts the longest history among the research and development divisions of the many foreign-owned cosmetics companies operating in Japan, and it has developed a true understanding of the country's culture, history, and society ahead of competitors. Its research team of over 200 members engage in the development of products in various categories for the Group's brands, including those in the luxury segment. Our leading brands include Lancôme, Shu Uemura, Kiehl's, Yves Saint-Laurent, Helena Rubinstein, Kérastase, L'Oréal Professionnel and Maybelline New York. (Japanese) <https://www.loreal.com/ja-jp/japan/articles/science-and-technology/beauty-research-and-innovation/>

## Morishita Jintan Co., Ltd. (<https://www.jintan.co.jp/>)

Main business: Manufacture and sales of pharmaceuticals, quasi-drugs, medical equipment, food, and other products. Driven by founder Hiroshi Morishita's conviction to serve society, the company has continued supplying products that contribute to people's health and affluent lives since its establishment in 1893. Jintan pills were initially developed as a pocketable general health supplement (they were larger and red in color at the time), and they later became the popular silver mouth refresher pills (now a quasi-drug; trade name: Jintan N). Expanding on ideas gained through the production of Jintan pills, the company independently developed the seamless capsule technology, whose application is beginning to spread to various industries. Based on these assets, as well as on accumulated experience in herbal medicine research, and through the establishment and development of unique technologies, Morishita Jintan conducts corporate activities in a broad range of fields.

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