

Takara Belmont discovers changes at the core of hair structure Resulting “Hair Medulla Care” technology will change the future of haircare

Osaka, Japan, November 2, 2020 – Takara Belmont Corporation (hereinafter Takara Belmont) has developed a new technology for analysing hair, leading to the discovery of structural changes in the medulla, the central part of hair previously largely not visible to researchers. As a result, it has developed a new hair care system, designated “Hair Medulla Care”, which beautifies hair by reconstructing the medulla. Looking ahead, Takara Belmont will build on these findings to deepen scientific knowledge of the medulla, with a view to applying the research in new hair care products.

The research findings were selected for a prestigious oral presentation at the 31st IFSCC Congress 2020 Yokohama, the academic conference of the International Federation of Societies of Cosmetic Chemists, held online from October 21 to October 30, 2020.

Hair structure is generally divided into three regions: the cuticle on the outside, the cortex, and then the medulla core. Hair is a field of cosmetic research in which much remains to be discovered, but in particular very little is known about the detailed structure and function of the medulla. To unlock its secrets, the Takara Belmont Cosmetics Laboratory has developed a new hair sectioning technology for directly observing the internal structure, in order to analyze the medulla in detail. The key feature of this technology is Takara Belmont’s original method of cutting individual hairs lengthwise to observe it, a first for the industry.

Using this hair sectioning technology, it was discovered that two types of medulla exist: the “black medulla” in which light is scattered and the interior appears black and unclear, and the “white medulla”, which scatters less light, resulting in a white and clear appearance. In the white medulla, the central fibrous structure is thicker and has fewer than half the pores of the black medulla. Based on this knowledge, Takara Belmont succeeded in developing Hair Medulla Care, a method for filling a porous black medulla, changing it into white medulla-like condition and then maintaining that state. For example, the whitest and most apparent grey hair samples taken from Japanese people were characterized by a large number of black medulla. When we applied the Hair Medulla Care treatment to these grey hairs, we were able to confirm that their transparency improved, and they took on a more beautiful appearance, a significant finding which we predict will excite the beauty industry.

Hidetaka Yoshikawa, Chairman and CEO of Takara Belmont, states: “I feel extremely pleased that our research institute has been able to report this kind of world-first result. I consider this to be an extremely important discovery for accelerating hair research. Going forward, I aim to contribute to the beauty industry and wider society in the form of cosmetics development, so that many people from all walks of life can enjoy beautiful hair.”

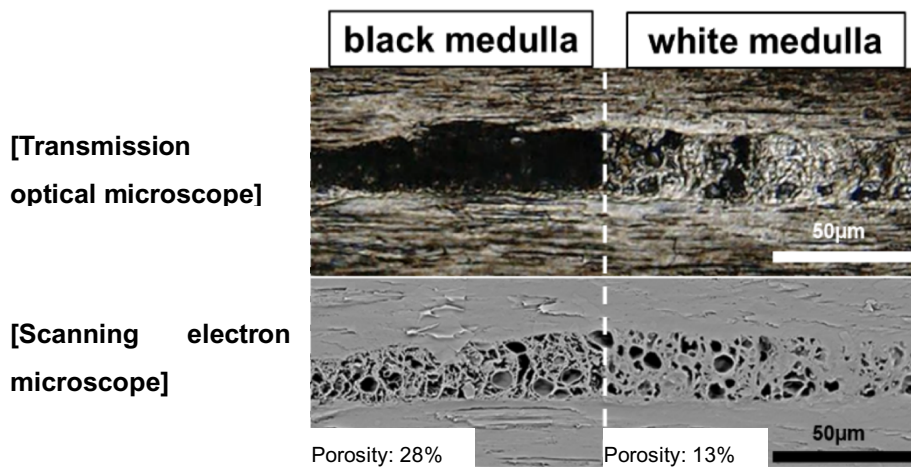
Takara Belmont will pursue further research into Hair Medulla Care and investigate a variety of hair conditions in addition to greying in order to accelerate medulla research and its application to products. Going forward, Takara Belmont will create new technologies and new value, apply them to merchandise and services, and spread the hope of beauty by responding to the hair-related concerns of people worldwide, aiming for the realization of the ideal hair of each person, and maximizing the potential of this research.

Research outline

(i) Discovery that two types of medulla exist: black medulla and white medulla

Firstly, we made longitudinal hair sections of the black hair of a Japanese woman using our original sectioning technology and observed the structures of their medulla with a transmission optical microscope and a scanning electron microscope. We found two different types of hair medulla: the black medulla scattering transparent light and appearing black and obscure, and the white medulla resembling the surrounding cortex and appearing white - a new discovery of this study. Furthermore, we found that white medulla had a thicker fibrous structure with fewer pores than black medulla and this different porosity affects hair appearance. (see Figure 1). This is a world-first discovery that will advance hair research, and it is expected that application of this new technology will stimulate the hair cosmetics market.

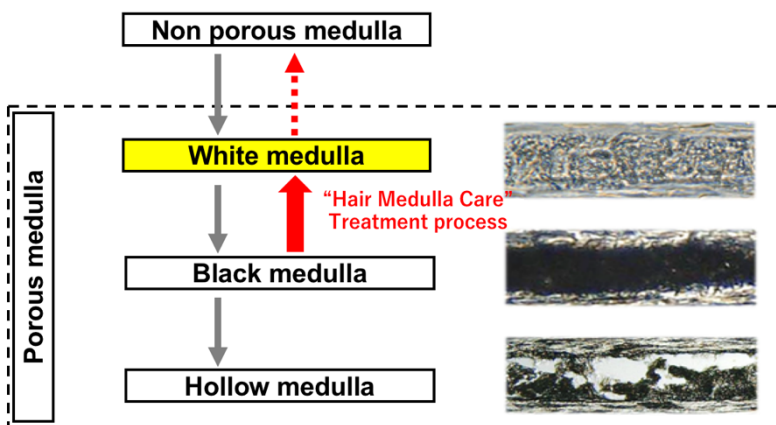
Figure 1: Two types of medulla: black medulla and white medulla



(ii) A novel concept of hair care, Hair Medulla Care Investigation of changes at hair medulla

To examine the relationship between the white medulla and the black medulla, we directly applied a variety of chemical treatments to the medulla and observed any changes. In this examination, many types of damaging treatments caused change from white medulla to black medulla. Furthermore, when the damage progressed further, the pores in the black medulla increased, turning the medulla hollow, sparse or absent (see Figure 2).

Figure 2: Summary of medullary change process



Investigation of treatment the method for filling pores in the medulla

Then, we investigated treatment methods for improving the porous condition of the medulla and found a way of filling the pores in the black medulla, changed them into a white medulla-like condition consistently. We achieved this by combining a certain type of polypeptide with a specific penetrating agent, giving the combination further reductiveness. In other words, we succeeded in developing a new technology that drastically and sustainably improved the porous condition of the medulla. We named this innovation as “Hair Medulla Care”.

When we examined the condition of the medulla in Japanese hair, we found a large number of grey hairs with black medulla, especially in conspicuous, whitish grey hairs. When we applied Hair Medulla Care to hair bundles of whitish and conspicuous grey hairs containing only black medulla, their transparency improved, giving a more beautiful appearance (see Figure 3a). We then mixed these grey hairs with black hair in a ratio of 5%. The hair bundle of mixed Hair Medulla Care-treated grey hairs had increased transparency and reduced whiteness; hence, their appearance assimilated to that of the surrounding black hairs and became almost inconspicuous (see Figure 3b).

Figure 3: Effect of Hair Medulla Care on grey hair appearance



Hair Medulla Care is proven to be a successful new hair care technology that fills porous black medulla and beautifies the appearance of hair by improving its structure and transparency. We are proud to be able to present this technology for the first time in the field of hair science.

About the International Federation of Societies of Cosmetic Chemists

The international academic congress held by the International Federation of Societies of Cosmetic Chemists (IFSCC) is the most prestigious academic conference in the cosmetics industry. It is attended by cosmetic chemists from around the world, who present cutting-edge cosmetics technologies. The 31st congress was held in Yokohama in 2020 as an online event. The submitted academic papers are strictly reviewed by the IFSCC and authors are given the opportunity to present the chosen papers at the conference. The opportunity to give an oral presentation is only given to some of these papers. At IFSCC 2020, there were 69 oral and 372 poster presentations. On this occasion Takara Belmont gave its presentation with the title, *A Novel Concept, Hair Medulla Care - Unveiling hair medulla structure can change grey hair appearance*.

About Takara Belmont

Takara Belmont was founded in Osaka, Japan in 1921. In Japan, we have developed a full range of salon

equipment and hair cosmetics for use by hairdressing and beauty industry professionals, as well as dental and medical apparatus and equipment for the healthcare industry. Globally, we have local subsidiaries in 12 countries, and we are manufacturing and selling a range of brands, including Takara Belmont (salon equipment), LebeL and ESTESSiMO (professional cosmetics for use by salons), and Belmont (dental units and medical equipment), to beauticians, estheticians, manicurists, dentists, and doctors throughout the world.

We entered the business of professional cosmetics for salons in 1964 and established our own brand, LebeL with our R&D department, in 1977. The following year we began operating our cosmetics factory, and we are continuing environmentally-friendly product development and manufacturing that offers the quality of Made in Japan. We began exporting in 1996 and currently we are expanding our business in Russia and Asian countries.

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Corporate Information

Company Name: Takara Belmont Corp.

Representative: Hidetaka Yoshikawa, Chairman and CEO

Locations:

Osaka Headquarters: 2-1-1, Higashishinsaibashi, Chuo-ku, Osaka

Tokyo Headquarters: 7-1-19, Akasaka, Minato-ku, Tokyo

Founded: October 5, 1921

Capital: 300 million yen

No. of employees: 1,544 (as of March 31, 2020)

Line of business: Hairdressing-related appliances and equipment, cosmetics, dentistry- and medical- related apparatus and equipment

Official website: <https://www.takarabelmont.co.jp/global/>

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