Press Information

Kyocera's Aquala® Advanced Total Hip Bearing Technology Wins President's Award from Japan Techno-Economics Society

Kyoto/London, March 17th, 2020. Kyocera received the President's Award from the Japan Techno-Economics Society (JATES) for the development of its Aquala® surface-processing technology[1]. Developed in collaboration with the University of Tokyo, Kyocera's Aquala technology has proven to extend the life expectancy of artificial hip joints, remaining durable even after long-term testing equivalent to more than 70 years in vivo[2]. JATES has honored outstanding innovations every year since 2013, with the aim of revitalizing Japan's economy and encouraging researchers to learn from the achievements of previous award recipients.

8th Annual Award ceremony, Tokyo, Japan

From left to right: Toru Moro - Project Associate Professor at the University of Tokyo; Kazuhiko Ishihara – Professor at the University of Tokyo; Makoto Yoshida - General Manager of Kyoceras Medical R&D Center; Nobuhiro Endo - President of Japan Techno-Economics Society

About Aquala Technology

Kyocera's Aquala technology is an advanced bearing material that was designed for use on the acetabular side for artificial hip joints. The technology is engineered to reduce wear, lower friction and optimize lubrication in the hip joint. When used in combination with a femoral head made of

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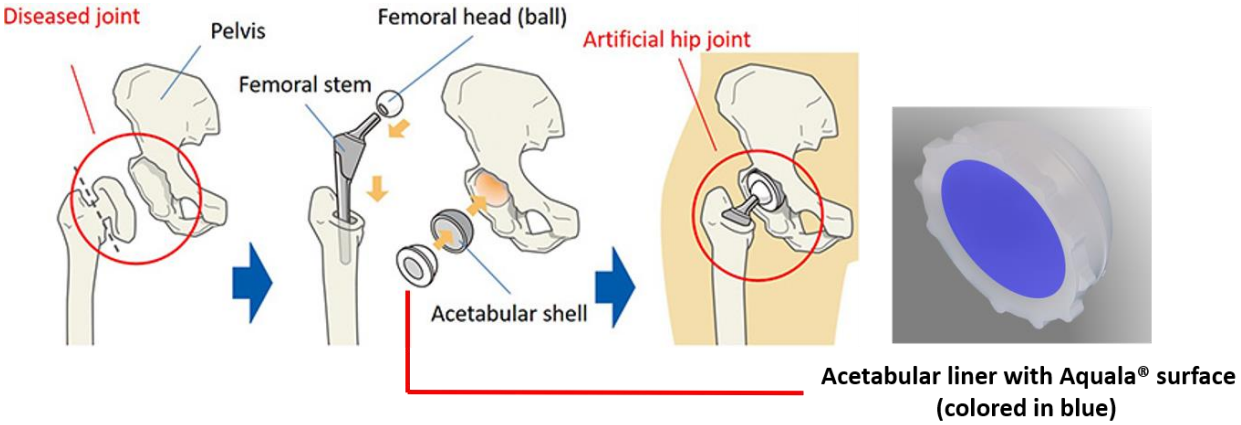
[1] Aquala is approved for sale only in Japan and currently available only on the Japanese market.

[2] Reference Source: T. Moro, Y. Takatori, M. Kyomoto, K. Ishihara, M. Hashimoto, H. Ito, T. Tanaka, H. Oshima, S. Tanaka, and H. Kawaguchi: "Long-term hip simulator testing of the artificial hip joint bearing surface grafted with biocompatible phospholipid polymer," The Journal of Orthopedic Research 32(3): 369-376, 2014

Kyocera's BIOCERAM AZUL® advanced ceramic technology[3], it results in an ultra-low wear, total hip replacement. Aquala helps to reduce the incidence of wear particles generated at the bearing surface of the artificial joint – which can lead to osteolysis, or bone loss –, loosening of the joint, and eventually joint failure. With wear reduction of up to 99 percent compared to conventional products, Kyocera's Aquala technology could potentially provide patients with a "lifetime joint" that reduces the chances of additional surgery due to excessive wear to the implant.



Mechanism of Hip Joint Replacement Technology

Aquala represents the first Japan-market use[4] of the biocompatible material PMPC[5] to create a nanometer-scale[6] hydrophilic polymer layer with biomimetic[7] functions similar to human articular cartilage. JATES recognized this innovation for its impact in supporting Japan's "super-aged" society, and for the collaboration it represents between medical and industrial sectors.

Japan's Ministry of Health, Labor and Welfare approved the use of Aquala technology in artificial hip joints on April 28, 2011. To date, more than 60,000 patients have undergone orthopedic joint replacements using Aquala technology.

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[3] "Aquala" and "BIOCERAM AZUL" are registered trademarks of Kyocera Corporation in the United States and Japan.

[4] First use: Based on research by Kyocera

[5] PMPC: Poly (2-methacryloyloxyethyl phosphorylcholine [MPC]), an implantable, biocompatible polymer

[6] Nanometer-scale: A scale of 1-100 nanometers (a nanometer is one-millionth of a millimeter)

[7] Biomimetic: The science of solving complex human challenges using models from nature

Summary of Technology Management & Innovation Awards

Award name	President's Award at the 8th Technology Management & Innovation Awards
Award winner	Hideo Tanimoto, President of Kyocera Corporation Kazuhiko Ishihara, Professor, Graduate School of Engineering, University of Tokyo Toru Moro, Project Associate Professor, Graduate School of Medicine, University of Tokyo
Project	Development and practical application of artificial hip joints; Long-lasting product based on biomimetic technology supporting a "super-aged" society

For more information on Kyocera: www.kyocera.co.uk

About Kyocera

Headquartered in Kyoto, Japan, Kyocera Corporation is one of the world's leading manufacturers of fine ceramic components for the technology industry. The strategically important divisions in the Kyocera Group, which is comprised of 286 subsidiaries (as of March 31, 2019), are information and communications technologies, products which increase quality of life, and environmentally friendly products. The technology group is also one of the most experienced producers of solar energy systems worldwide, with more than 40 years of know-how in the industry.

The company is ranked #655 on Forbes magazine's 2019 "Global 2000" listing of the world's largest publicly traded companies. With a global workforce of over 77,000 employees, Kyocera posted net sales of approximately €12,99 million in fiscal year 2018/2019. The products marketed by the company in Europe include printers, digital copying systems, semiconductor-, fine ceramic-, automotive- and electronic components as well as printing devices and kitchen products. The Kyocera Group has two independent companies in the United Kingdom: Kyocera Fineceramics Ltd. and Kyocera Document Solutions.

The company also takes an active interest in cultural affairs. The Kyoto Prize, a prominent international award, is presented each year by the Inamori Foundation — established by Kyocera founder Dr. Kazuo Inamori — to individuals and groups worldwide who have contributed significantly to the scientific, cultural, and spiritual betterment of humankind (converted at approximately €828,000 per prize category).

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