



TAKEDA AND BIOSURFACES ANNOUNCE JOINT RESEARCH PROGRAM TO EXPLORE PROMISING DEVICES TO TREAT GASTROINTESTINAL DISEASES

Cambridge, MA, Ashland, MA; **July 25, 2017**, - Takeda Pharmaceutical Company Limited (TSE: 4502) and BioSurfaces, Inc. announced today that they have entered into an agreement to initiate a research program designed to develop innovative medical devices to treat patients with gastrointestinal (GI) diseases using BioSurfaces' proprietary nanomaterial technology.

Under the joint research program, Takeda and BioSurfaces will explore novel therapeutic approaches for treating GI indications. Takeda will provide scientific and technical expertise in gastroenterology, while BioSurfaces will provide medical device design and nanomaterial expertise and fabrication technology. Additional terms of the agreement are not being disclosed.

"We are excited to partner with BioSurfaces, whose pioneering technology aids our strategy of applying novel biomaterials to treat gastrointestinal diseases," said Vincent Ling, Ph.D, senior director of the Materials and Innovation, Takeda Pharmaceutical Sciences. "Our research collaboration will lead to the development of cutting-edge use of biopolymers and device fabrication technology. Application of developed technology has the potential to help prevent strictures and promote healing of fistulas, which are common manifestations of GI diseases. Takeda has a long history of material innovation and this collaboration with BioSurfaces is a further example of our expansion of therapeutic modalities into nano-scale biomaterials."

BioSurfaces has developed a groundbreaking process for producing nanofibrous materials out of FDA-approved polymers. These materials can be made to form a variety of unusual and difficult-to-manufacture shapes while also demonstrating improved biocompatibility over other textile-based medical implants. BioSurfaces' manufacturing process further allows the incorporation of drugs or other bioactive agents directly into the nanofibers for localized release.

"Our group has been developing and refining our promising nanomaterial technology for over 13 years. Various devices using our technology have been shown to fully integrate with the body's own tissue in preclinical studies, which is a major differentiator from current woven and knitted textile materials," said Matthew Phaneuf, President and CTO of BioSurfaces. "In addition to improved healing, our technology is designed to deliver drugs and/or bioactive agents directly to the disease area, putting the treatment right where it should be and not throughout the whole body, thereby reducing possible complications. These attributes are promising for the next generation of medical devices and drug-delivery systems. We are excited about the opportunity to partner with Takeda, a world leader and innovator in therapeutic interventions, to apply our technology to develop novel therapeutic devices for patients with GI dysfunction."

About BioSurfaces, Inc.

BioSurfaces, based in Ashland, Massachusetts, is an innovative company on the cutting edge of bioactive nanotechnology. BioSurfaces seeks to improve the quality of medical care and the lives of patients everywhere by applying its unique, proprietary and versatile electrospinning nanotechnology to a broad range of existing and emerging biomedical devices. Medical devices and drug delivery systems made from standard textile materials typically have several associated problems, including healing issues that stymie long-term effectiveness, unpreventable complications such as infection, and a failure to provide the localized therapeutic delivery of drugs at the disease site. To counter these problems, BioSurfaces has developed a process for producing nanofibrous materials out of commonly used FDA-approved polymers, uniquely positioning the company to provide a better, alternative product for medical device companies.

BioSurfaces can add value and sophistication to products and bring design concepts to life with its next generation biomaterial nanotechnology. Additional information about BioSurfaces and its services are available through its website, www.biosurfaces.us.

About Takeda Pharmaceutical Company

Takeda Pharmaceutical Company Limited is a global, research and development-driven pharmaceutical company committed to bringing better health and a brighter future to patients by translating science into life-changing medicines. Takeda focuses its R&D efforts on oncology, gastroenterology and central nervous system therapeutic areas plus vaccines. Takeda conducts R&D both internally and with partners to stay at the leading edge of innovation. New innovative products, especially in oncology and gastroenterology, as well as Takeda's presence in Emerging Markets, are currently fueling the growth of Takeda. More than 30,000 Takeda employees are committed to improving quality of life for patients, working with Takeda's partners in health care in more than 70 countries. For more information, visit www.takeda.com/news.

Takeda's Commitment to Gastroenterology

More than 70 million people worldwide are impacted by gastrointestinal (GI) diseases, which can be complex, debilitating and life-changing. Takeda is driven to improving the lives of patients with GI diseases through innovative medicines, dedicated patient disease management support and the evolution of the healthcare environment. Takeda is leading in gastroenterology through the delivery of innovative medicines in areas associated with high unmet needs, such as inflammatory bowel disease, GI acid-related diseases and GI motility disorders. Our GI research & development team is also exploring solutions in celiac disease and liver diseases, as well as scientific advancements through microbiome therapies. With more than 25 years of experience in this area, our broad approach to treating many diseases that impact the GI system and our global network of collaborators, Takeda aims to advance how patients manage their disease.

Takeda's Forward-Looking Statements

This press release contains "forward-looking statements." Forward-looking statements include all statements other than statements of historical fact, including plans, strategies and expectations for the future, statements regarding the expected timing of filings and approvals relating to the transaction, the expected timing of the completion of the transaction, the ability to complete the transaction or to satisfy the various closing conditions, future revenues and profitability from or growth or any assumptions underlying any of the foregoing. Statements made in the future tense, and words such as "anticipate," "expect," "project," "continue," "believe," "plan," "estimate," "pro forma," "intend," "potential," "target," "forecast," "guidance," "outlook," "seek," "assume," "will," "may," "should," and similar expressions are intended to qualify as forward-looking statements. Forward-looking statements are based on estimates and assumptions made by management that are believed to be reasonable, though they are inherently uncertain and difficult to predict. Investors and security holders are cautioned not to place undue reliance on these forward-looking statements.

Forward-looking statements involve risks and uncertainties that could cause actual results or experience to differ materially from that expressed or implied by the forward-looking statements. Some of these risks and uncertainties include, but are not limited to: required regulatory approvals for the transaction may not be obtained in a timely manner, if at all; the conditions to closing of the transaction may not be satisfied; competitive pressures and developments; applicable laws and regulations; the success or failure of product development programs; actions of regulatory authorities and the timing thereof; changes in exchange rates; and claims or concerns regarding the safety or efficacy of marketed products or product candidates in development.

The forward-looking statements contained in this press release speak only as of the date of this press release, and neither BioSurfaces nor Takeda undertake any obligation to revise or update any forward-looking statements to reflect new information, future events or circumstances after the date of the forward-looking statement. If one or more of these statements is updated or corrected, investors and others should not conclude that additional updates or corrections will be made.

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