

GreenMark Secures Follow-On Funding for Regenerative Treatment Technology

East Lansing & Ann Arbor, MI – GreenMark Biomedical Inc. along with its collaborators at the University of Michigan (U-M) today announced that its technology on regenerative treatment of tooth enamel has received support at up to \$913,000 from the Michigan-Pittsburgh-Wyss Regenerative Medicine (MPWRM) Resource Center (NIH grant number: U24-DE029462). This 5-year grant to MPWRM is an initiative by the National Institute of Dental and Craniofacial Research (NIDCR) of the National Institutes of Health (NIH). The MPWRM's overarching goal is to develop clinical trial-ready tissue engineering/regenerative medicine products and protocols, by providing funding and critical resources.

"This ongoing NIH support through NIDCR provides us with much-needed resources for our noninvasive dental product development initiatives," states GreenMark's Chairman and CEO, Dr. Steven Bloembergen, Ph.D., the Principal Investigator (PI) of the grant.

Dental caries, the world's most prevalent chronic disease, affects over 95% of Americans who suffer consequences of tooth decay during their lifetime. *"The current standard for noninvasive caries treatment has been lacking, with fluoride products merely sealing the superficial surface of carious white spots, without restoring the dominant subsurface lesion,"* explains co-investigator Dr. Brian Clarkson, B.Ch.D., L.D.S., M.S., Ph.D., Professor, Department of Cariology, Restorative Sciences & Endodontics at U-M School of Dentistry, one of the co-inventors of the technology.

GreenMark's LumiCare™ Caries Detection Rinse, currently 510(k) pending with FDA, was created to provide a quick and affordable method to detect early-stage "incipient" lesions. *"The rinse contains bioresorbable starch nanoparticles that target incipient carious lesions and, by using a standard blue curing light, illuminates them so they are brightly visible, thus enabling oral healthcare professionals to reveal lesions that would otherwise have gone unnoticed,"* explains co-investigator/co-inventor Dr. Joerg Lahann, Ph.D., Director of U-M Biointerfaces Institute.

"With this new GreenMark technology we will be able to reverse early damage caused by decay in a natural and pain-free fashion," notes Co-PI Dr. Carlos González-Cabezas, DDS, MSD, Ph.D., Richard Christiansen Collegiate Professor of Oral and Craniofacial Global Initiatives, Director of Global Oral Health Initiatives and Associate Professor of Dentistry at U-M School of Dentistry.

"Now that we can identify early-stage carious lesions, based on the same technology platform, we are continuing to develop our regenerative treatment to demonstrate it more fully," explains Dr. Nathan Jones, M.Sc., Ph.D., co-inventor and GreenMark's Vice President Technology, adding *"... we're developing a caries restorative gel that contains mineral-loaded starch particles designed to target early subsurface porosities and regenerate new enamel-like mineral."*

"In the post COVID-19 era, dentists will be even more receptive to noninvasive products such as these, given concerns over aerosols caused by high-speed handpieces that could spread air-borne viruses," notes co-investigator Dr. Livia Tenuta, DDS, M.Sc., Ph.D., Associate Professor, Department of Cariology, Restorative Sciences & Endodontics, U-M School of Dentistry.

The company's research to date has shown the gel could be used to combat dentinal hypersensitivity and noninvasively restore early-stage carious lesions. Preliminary findings have shown white spots fading away within two weeks following a single-dose treatment. *"The goal of our work is to improve oral health outcomes by helping to preserve teeth using a medical model for caries management, also avoiding needles and drills,"* states Dr. Wendy Bloembergen, MD, MS, GreenMark's Vice President Clinical Affairs.

About GreenMark Biomedical Inc.

GreenMark is developing products that involve small sub-micron particles produced from food grade starch. These particles make an ideal carrier for medical and dental applications, given enzymes in our body and saliva degrade starch. Dental caries is the most prevalent chronic disease in the world, and GreenMark is developing ways to identify and better assess the disease in its early stages, monitor progression and to treat it noninvasively or non-surgically. The Company's LumiCare™ Caries Detection Rinse, to be used by dental professionals as part of the routine dental exam, contains fluorescently labeled starch particles that target the subsurface of carious and illuminate them using a standard curing light found in every dental practice. The identification at early stages before cavitation will allow the use of non-surgical management options, resulting in less discomfort and improved long-term oral health outcomes for patients. GreenMark's team has also demonstrated the ability to load the essential minerals, depleted as a result of tooth decay, directly inside the small starch particles. Unlike fluoride products which seal the tooth's enamel surface, GreenMark's treatment products are designed to target and restore the enamel subsurface.

GreenMark Biomedical Inc. has an office located at 325 E. Grand River Avenue, Suite 314, East Lansing, MI 48823 and offices & lab facilities at 1600 Huron Parkway, Building 520, 2nd Floor, Ann Arbor, MI 48109. Contact: info@greenmark.bio or (517) 896-3665. For more information, visit www.greenmark.bio.

About University of Michigan (U-M)

The mission of the University of Michigan is to serve the people of Michigan and the world through preeminence in creating, communicating, preserving and applying knowledge, art, and academic values, and in developing leaders and citizens who will challenge the present and enrich the future. See <https://umich.edu/about/>.

About National Institutes of Health (NIH)

NIH, the nation's medical research agency, includes 27 Institutes and Centers and is a component of the U.S. Department of Health and Human Services. NIH is the primary federal agency conducting and supporting basic, clinical, and translational medical research, and is investigating the causes, treatments, and cures for both common and rare diseases. For more information about NIH and its programs, visit www.nih.gov. The National Institute of Dental and Craniofacial Research (NIDCR), part of NIH is the Nation's leading funder of research on oral, dental, and craniofacial health. To learn more about NIDCR, please visit: <http://www.nidcr.nih.gov>.

About MPWRM Resource Center

The translation of innovative tissue engineering/regenerative medicine technologies requires a new approach to bringing dental, oral and craniofacial technologies to clinical practice. To meet this need, an integrated multidisciplinary Resource Center has been established as a partnership between University of Michigan, the University of Pittsburgh/McGowan Institute, and Harvard University/Wyss Institute for Biologically Inspired Engineering. This NIH/NIDCR funded center through a U24 cooperative agreement, named the Michigan-Pittsburgh-Wyss Regenerative Medicine (MPWRM) Resource Center, consists of leaders with clinical, basic science, engineering and business expertise and an infrastructure to support navigation through the regulatory process and clinical trials. The goal of the MPWRM Resource Center is to translate tissue engineering/regenerative medicine innovations that address the ongoing clinical need to restore or create healthy, functional dental, oral, and craniofacial tissues. Its Interdisciplinary Translational Project (ITP) programs seeks to catalyze clinical translation of promising technologies that address clear unmet clinical need with market potential in the dental, oral, and craniofacial space. See <https://doctrc.pitt.edu/funded-projects/>.

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