GreenMark Announces NIH Funding for AI-Enabled Early Caries Detection

GreenMark announces it received a Phase I SBIR grant, entitled "Improving Caries Diagnosis with Targeted Nanoparticle-Enhanced AI-Assisted Intraoral Imaging".
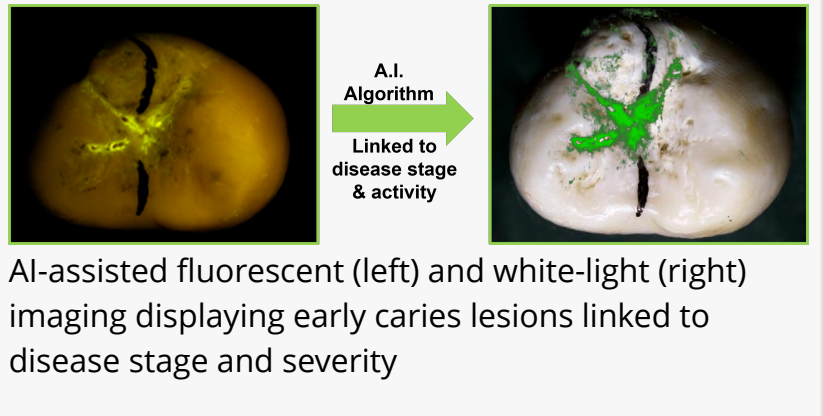
ANN ARBOR, MI, UNITED STATES, April 3, 2025 /EINPresswire.com/ -- GreenMark Biomedical Inc., a pioneer in leveraging biomimetic technology for dental health innovations,

AI-assisted fluorescent (left) and white-light (right) imaging displaying early caries lesions linked to disease stage and severity

announces that it has received a Phase I Small Business Innovation Research (SBIR) grant in the amount of US $ 294,632 from the National Institutes of Health (NIH). The grant will be supported with $25,000 additional funding from the State of Michigan via its Emerging Technologies Fund.

This project, entitled "Improving Caries Diagnosis with Targeted Nanoparticle-Enhanced AI-Assisted Intraoral Imaging", will support an ongoing collaboration between GreenMark and the University of Michigan (U-M).

This project responds to the need identified by the National Institute of Dental and Craniofacial Research (NIDCR) division of NIH, to develop improved methods to detect, monitor, and predict progression of dental caries (tooth decay) to improve human health. Worldwide, caries is the most common chronic disease affecting almost everyone. Dental disease is a major cause of economic and social loss and leads to complications including pain, tooth loss, and even death.

> "
> Our LumiVision™ camera captures clinical white-light & fluorescent images of caries lesions. The AI-driven software will analyze severity and disease progression, revolutionizing caries management."
> *Dr. Nathan A. Jones, MSc, PhD, Vice President Technology at GreenMark*

Dr. Nathan A. Jones, MSc, PhD, Vice President Technology at GreenMark and Principle Investigator on the grant explains "This project will further develop our LumiVision™ intraoral camera system that captures clinical white-light and fluorescent images of caries lesions illuminated with our LumiCare™ rinse. The AI-driven software will analyze lesion severity, track disease progression, and support medical remineralization treatments, revolutionizing caries

detection and management."

"With prior SBIR funding we successfully developed a clinically validated mouth rinse that uses targeted fluorescent biopolymer nanoparticles to illuminate early active caries lesions, formulated into an FDA-cleared product called LumiCare™ Caries Detection Rinse. While an effective tool for point-of-care caries detection and activity assessment, implementation remains limited because the clinical technique is qualitative and requires training to achieve competency," adds Dr. Wendy Bloembergen, MD, MS, Vice President Clinical Affairs.

Enhanced Visualization with LumiCare™ Caries Detection Rinse

Dr. Livia Tenuta, DDS, MS, PhD, Associate Professor, Cariology, Restorative Sciences & Endodontics at U-M School of Dentistry notes "Dentistry is now embracing Artificial Intelligence, primarily for radiograph analysis, in addition to clinical exams. This new research from GreenMark goes one step further by allowing precise monitoring of caries lesions without the use of X-rays, differentiating those that are actively progressing from those that are not. This is a breakthrough in the old paradigm of caries detection, by allowing the clinical practice of minimally invasive dentistry in a predictable way. This research will help develop a much-needed tool for caries lesion monitoring, allowing better patient education and empowerment over their oral health."

Dr. Steven Bloembergen, Ph.D., Chairman and CEO of GreenMark, points to the clinical implications: "We are grateful to receive this grant support to empower dental professionals and patients with a non-invasive, objective, and teledentistry friendly solution for improved oral health."

About GreenMark Biomedical Inc.
GreenMark continues to innovate in minimally invasive dental care, offering groundbreaking solutions that address unmet needs in oral health. The Company is dedicated to transforming dental care through scientific innovation and technological excellence by developing a systems approach for treatment of dental sensitivity and management of caries (dental decay). GreenMark has developed methods to identify, better assess and monitor caries disease in its earliest stages, before being detected on X-ray radiographs. The company's LumiCare™ Caries Detection Rinse and half-dose LumiKids™ rinse for ages 6 to 11, contain fluorescently labeled particles that target the porous subsurface of caries lesions in enamel and illuminate them using a dental curing light, thereby aiding in their visualization. The identification at early stages before a cavity forms facilitates the use of preventive non-surgical management options, resulting in

less discomfort and improved long-term oral health outcomes for patients with its patented products that involve sub-micron particles produced from food-grade starch. This is an ideal carrier since enzymes in saliva degrade starch. Dental sensitivity affects up to 74% of Americans, and current products have limitations. Caries is the most prevalent chronic disease in the world, affecting more than 95% of Americans over their lifetimes. GreenMark's team has demonstrated the ability to load calcium and phosphate, the essential mineral components of dentin and enamel, inside small starch particles, and has been developing treatment products designed to target and restore minerals to the teeth. While fluoride seals the upper surface without restoring the dominant lesion, GreenMark's tiny bioresorbable particles deliver bioactive calcium and phosphate ions directly to the subsurface of teeth where they undergo biomimetic crystallization to form hydroxyapatite. CrystLCare™ Biorestorative dental strips are fluoride-free and empower oral health for dentists and their patients, making checkups a more positive experience for dental clinics in the modern world. Low-dose fluoride efficient products will become available later this year. Visit www.greenmark.bio.

About the University of Michigan School of Dentistry
The U-M School of Dentistry is one of the nation's leading dental schools engaged in oral healthcare education, research, patient care and community service. General dental care clinics and specialty clinics providing advanced treatment enable the school to offer dental services and programs to patients throughout Michigan. Classroom and clinic instruction prepare future dentists, dental specialists and dental hygienists for practice in private offices, hospitals, academia and public agencies. Research seeks to discover and apply new knowledge that can help patients worldwide. More information about the School of Dentistry is available on its website at: www.dent.umich.edu.

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. Visit: www.nidcr.nih.gov.

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