

RegeneratOR Workforce Development Receives NSF Award

WINSTON-SALEM, NC – August 3, 2021 – Regenerative medicine is a cross-disciplinary field that aims to repair or replace abnormal organs by growing tissues in the laboratory or cells for therapy. The field includes convergent technologies such as cell biology, nanotechnology, AI (Artificial Intelligence), nanotechnology, engineering, and cyberbiosecurity.

With the recent announcement of the RegeneratOR Test Bed to support regenerative medicine start up companies, the Wake Forest Institute for Regenerative Medicine (WFIRM) and the RegenMed Development Organization (RemDO) are embarking on the next step – to help create the future workforce.

Led by WFIRM, the National Science Foundation (NSF) has awarded \$441,028 to a group of local partners, to help develop a regional regenerative medicine educational network and create the skilled technical workforce for a field driven by science and engineering. Workforce development is part of RemDO and WFIRM’s overall plan to develop a robust regenerative medicine business landscape to drive innovation in the Regenerative Medicine Hub, a growing intersection of biotechnology and business in North Carolina.

The NSF grant brings together WFIRM, Forsyth Technical Community College and Simon G. Atkins High School of Winston-Salem/Forsyth County Schools, as well as supporting partners from Winston-Salem State University, NC A&T, and NC Central University.

With this support, the partnering group will address the workforce needs of the regenerative medicine field that is rapidly evolving from R&D, through clinical translation, to biomanufacturing and the scale-up of production. This evolution of the field requires more skilled technicians and next-generation technicians to create an upskilled workforce armed with new knowledge and education.

“The support we have locally for this project is amazing and reflects the willingness of our local educational entities to help lead the way,” said Gary Green, EdD, Chief Workforce Development Officer for WFIRM. “Bringing this new science and technology to high school, community college, and university faculty will strengthen curricula, student learning, and thus the skilled technical workforce.”

WFIRM, Forsyth Tech, and Atkins are uniquely positioned to lead the project, Green added. WFIRM operates a dedicated Manufacturing Development Center (FDA Compliant Good Tissue Practice/ Good Manufacturing Practice) with diverse teams of experts enabling development and production of replacement cells and organs and the expansion of cells for therapy. Forsyth Tech is home to the National Center for the Biotechnology Workforce and a leading associate degree program in biotechnology, providing technicians for WFIRM and regional regenerative medicine companies. Atkins High School offers students a biotechnology major – coursework that prepares them for entry-level employment or higher education (community college or university).

The project will develop a regional model for skilled technician workforce development in regenerative medicine biomanufacturing focused on:

- K-12, community college, and university (with articulated programs) faculty development in regenerative medicine;

- Dissemination of new discovery and innovation and research-based knowledge, skills and abilities for the regenerative medicine field to community colleges and their partners;
- The design and implementation of multiple career entry options for community college-prepared technicians and career pathways for incumbent employees with a focus on underrepresented minorities.

The NSF's Advanced Technological Education Program, which awarded the grant, focuses on supporting integrated approaches to technician education that will define and disseminate the critical knowledge and skills needed for the regenerative medicine field and other advanced technology fields that drive the nation's economy.

A project advisory council, made up by regenerative medicine business and education/workforce development leaders, will help the partner groups undertake the grant initiatives: faculty development, disseminate new knowledge, discovery and innovation in regenerative medicine, and develop an educational ecosystem that focuses on developing the skilled technical workforce needed for the regenerative medicine field.

"The regenerative medicine field is advancing so rapidly that it is imperative we have a workforce with the needed skills to support our research and the development of regenerative medicine biomanufacturing," said WFIRM Director Anthony Atala, MD.

Atala said that regional employers in regenerative medicine are already expressing a significant need for highly skilled technicians, and "this need has been confirmed on a national level by a recently published survey by the RegenMed Development Organization which defined the skills needed and the extent of the skills gap."

About the Wake Forest Institute for Regenerative Medicine: The Wake Forest Institute for Regenerative Medicine is recognized as an international leader in translating scientific discovery into clinical therapies, with many world firsts, including the development and implantation of the first engineered organ in a patient. Over 400 people at the institute, the largest in the world, work on more than 40 different tissues and organs. A number of the basic principles of tissue engineering and regenerative medicine were first developed at the institute. WFIRM researchers have successfully engineered replacement tissues and organs in all four categories – flat structures, tubular tissues, hollow organs and solid organs – and 15 different applications of cell/tissue therapy technologies, such as skin, urethras, cartilage, bladders, muscle, kidney, and vaginal organs, have been successfully used in human patients. The institute, which is part of Wake Forest School of Medicine, is located in the Innovation Quarter in downtown Winston-Salem, NC, and is driven by the urgent needs of patients. The institute is making a global difference in regenerative medicine through collaborations with over 400 entities and institutions worldwide, through its government, academic and industry partnerships, its start-up entities, and through major initiatives in breakthrough technologies, such as tissue engineering, cell therapies, diagnostics, drug discovery, biomanufacturing, nanotechnology, gene editing and 3D printing.

About the RegenMed Development Organization: The mission of the RegenMed Development Organization (ReMDO) is to accelerate the discovery and translation of regenerative medicine therapies. ReMDO is a 501(c)3 non-profit organization that manages a

clinical translation initiative that includes thought leaders, representatives from leading US research centers, government representatives, and companies of all sizes. ReMDO conducts research to de-risk technologies and speed up their translation to clinical practice and to the global market. ReMDO manages the world's first and only professional organization dedicated solely to advancing the regenerative medicine field, the Regenerative Medicine Manufacturing Society (RMMS), and the Regenerative Medicine Manufacturing Innovation Consortium (RegMIC), which manages a private-public partnership of industry and academic members focused on scaling up technologies.