COLLEGE OF ARTS AND SCIENCES
CASE WESTERN RESERVE UNIVERSITY

Research Associate

Center for Modular Manufacturing of Structural Tissues
Case Western Reserve University
10900 Euclid Avenue
Cleveland, OH, 44106-7080 USA

The Center for Modular Manufacturing of Structural Tissues, Department of Biology, Case Western Reserve University (Arnold Caplan, PhD, Director) has an open position for a Research Associate developing novel sensor approaches in tissue engineered medical products (TEMP) manufacturing.

POSITION OBJECTIVE

W**e** seek to hire a fulltime Research Associate to advance the research and development, training and dissemination and administrative activities of an NIH NIBIB P41 funded NCBIB Center. This multi-investigator Center is called the *Center for Modular Manufacturing of Structural Tissue* (CM^2OST https://cm2ost.org).

The candidate will join a highly accomplished and active team of engineers and bioscientists whose activities include cell and tissue engineering, biomaterials, and bioreactor development for tissue engineered medical products (TEMP). The team is a collaboration between investigators in departments in the College of Arts and Sciences, the Case School of Engineering, the School of Medicine and the ARMI | BiofabUSA consortium in Manchester NH. CWRU is an R1 research institution with a strong focus in biomedical research. The labs provide a highly collaborative, collegial environment with a focus on TEMP manufacturing. Additionally, the Center activities encompass several dozen outside collaborative and service relationships with investigators or companies who use our technology.

The primary focus of this hiree will be on developing novel sensor approaches in TEMP manufacturing. These approaches will enable closed manufacturing of TEMP with process analytical technology. We are looking for intelligent, proactive, and curious individuals who are eager to take part in world-class research activities to understand and develop sensing technologies that will allow real time, in line monitoring and control of tissue manufacturing.

ESSENTIAL FUNCTIONS

Research: The candidate will participate in the development, deployment and integration of sensors and control systems for cell phenotype and seeding, for environmental parameters such as culture medium components and metabolites, and for mechanical properties of developing TEMPs. In these functions he/she will primarily work with the Departments of Chemical Engineering and Biology. Sensors will be from a broad range of classes, including electrochemical, optical and acoustic, and some will incorporate biological components (DNA/RNA, proteins).

Administrative Duties and Reporting: The candidate will be expected to co-author or author manuscripts resulting from his/her work at the Center and present data at local, national, and international meetings. Participate in workshops and training/dissemination activities organized by the

Center. Maintain accurate data recording, analyze data, write Standard Operating Procedures (SOPs). Contribute to the preparation of annual progress reports to the granting agency, and eventually in efforts towards renewing the Center funding.

Collaborative work: Work with outside investigators who are part of the ecosystem of Collaborative and Service projects that make use of the Center' resources. Interface with the Center co-investigators and staff located at the NH site.

QUALIFICATIONS

Experience: A bioengineering background. Preference will be given to researchers with experience in biomaterial synthesis, bioreactor design & development, cell culture, molecular biology and tissue engineering. Practical experience in a manufacturing setting would be an asset.

Education/Licensing: A doctoral degree at the time of appointment, preferably in a bioengineering discipline or a related field, *e.g.*, Biomedical, Electrical, Chemical, or Mechanical Engineering.

REQUIRED SKILLS

- Ability to work in a collaborative team environment, meet deadlines, manage work from multiple individuals.
- Excellent interpersonal communication skills and a high level of proficiency in written and spoken English. This is critical. The Center is a large group and keeping everyone apprised of developments, progress, and, where needed, challenges is key to smooth operations.
- Very good time-management skills.
- Ability to manage and perform multiple tasks.
- Self-motivated with great problem-solving capabilities.
- Ability to analyze and interpret data sets & communicate data in a clear and concise manner.
- Expertise in biomaterial fabrication (synthesis and characterization), cell culture and molecular biology techniques, tissue culture desirable.
- Familiarity with MatLab, CAD/CAM software (Solidworks, Autocad or similar), and physics-based modeling software (Comsol, Abacus or similar) desirable.
- Familiarity with 3D printing/bioprinting and G-code optimization desirable.
- Ability to initiate independent research projects supported by own ideas.

TO APPLY

For further information or to apply send inquiries containing a cover letter, CV with list of publications and contact information for three references to txl116@case.edu. Review of applications will begin immediately and continue until the position is filled. To read full position description *Research Associate - Biology | Academic Careers | Case Western Reserve University*.

In employment, as in education, Case Western Reserve University is committed to Equal Opportunity and Diversity. Women, veterans, members of underrepresented minority groups, and individuals with disabilities are encouraged to apply.

Case Western Reserve University provides reasonable accommodations to applicants with disabilities. Applicants requiring a reasonable accommodation for any part of the application and hiring process should contact the Office of Inclusion, Diversity and Equal Opportunity at 216-368-8877 to request a reasonable accommodation. Determinations as to granting reasonable accommodations for any applicant will be made on a case-by-case basis.

Case Western Reserve

Case Western Reserve University is among the nation's leading research institutions. Founded in 1826 and shaped by the unique merger of the Case Institute of Technology and Western Reserve University, Case Western Reserve is distinguished by its strengths in education, research, service and experiential learning. Located in Cleveland's University Circle, we offer nationally recognized programs in the arts and sciences, dental medicine, engineering, law, management, medicine, nursing and social sciences.

Student enrollment exceeds 9,800 students, forty percent of whom are undergraduates. Faculty and students hail from more than 90 countries, with academic interests that reach every region of the world. Case Western Reserve, with the support of individuals, corporations and foundations, aids nearly 100 designated research centers.

As a service-oriented institution dedicated to civic leadership, Case Western Reserve seeks individually and collectively to prepare our students to improve the human condition and to direct the benefits of discovery toward a better society. This effort is not limited to the university's classrooms, laboratories, libraries, residence halls and athletic fields, but includes partnerships with many other institutions. We build these partnerships believing that our ability to improve the human condition should begin in our own community.

Case Western Reserve University remains Ohio's top-ranked school among the nation's premier national universities, as ranked by *U.S. News & World Report* and is the only Ohio institution ranked in the top 50 nationally. We promote a culture of inquiry marked by rigor, creativity, curiosity, innovation, respect, sensitivity and open communication of ideas.

The university supports interdisciplinary partnerships in education and research with numerous faculty holding joint appointments in more than one Case Western Reserve school or department, as well as at neighboring institutions. These relationships launched many of the unique pairings of science, business and liberal arts into the centers and programs that enhance the undergraduate and graduate experience at the university. Our dual degree programs enrich the educational experience for those students who choose to balance the

technical requirements of engineering or the sciences with a strong interest in the humanities.

With more than $375 million in research funding annually, the university attracts outstanding undergraduate and graduate students along with renowned faculty whose research has made significant contributions to the way we live and work. Case Western Reserve counts 15 Nobel laureates among our alumni and current and former faculty, including the first American scientist to ever receive the prize.

Our students' experiences in cultural institutions, clinics, social service agencies and industry are not viewed as “extra-curricular,” but create the learning experience that defines a Case Western Reserve education. The university's service programs in the Cleveland Municipal School District have impacted more than 145,000 students with more than 43 signature programs. The university has launched more than 580 community partnerships on the local, national and international levels. Annually the university sponsors Case for Community Day, an event where hundreds of Case Western Reserve employees and students lend their time and talent to targeted community development projects in the Greater Cleveland area.

Our alumni number more than 110,000 and constitute a “who's who” of every profession. Alumni represent one of the university's strongest resources, playing a vital role in campus life through their work as advisors, mentors, friends and advocates.