Postdoctoral Positions in the Laboratory for Engineering in Oncology

Dept. of Biomedical Engineering / Masonic Cancer Center / UMN Physical Sciences in Oncology Center

Motivated postdoctoral associates with a strong quantitative background are sought to work at the interface of cell bioengineering and quantitative cancer biology in the Laboratory for Engineering in Oncology of Dr. Paolo Provenzano at the Univ. of Minnesota in Minneapolis, MN. Our laboratory studies the physical and molecular mechanisms driving cancer progression to metastasis and resistance to therapeutic intervention, and develops therapeutic strategies to re-engineer the tumor microenvironment. We actively utilize advanced quantitative imaging, cell and matrix mechanics, tissue engineering and cell / molecular biology / genetics approaches in our interdisciplinary cancer research program (for example Nature Communications 8:14923, 2017; Biophysical Journal 112(5):1023-1036, 2017; Scientific Reports, 6(29749), 2016; Cancer Cell, 21(3), 418-429, 2012).

Four areas of inquiry are being actively pursued:

Position 1) Intravital imaging of cell populations (carcinoma, fibroblast, immune etc.) in pancreatic tumors to dissect the physical and molecular mechanisms by which matrix architecture and tumor organization influence disease progression to metastasis.

Position 2) Immune mechanobiology studies to elucidate the influence of the physical and chemical properties of the tumor microenvironment on the motility and function of distinct pro- and anti-tumor immune cell populations.

Position 3) Stromal Re-Engineering to understand mechanisms by which the tumor microenvironment supports resistance to therapy and develop and test strategies to re-engineer the tumor microenvironment to enhance drug transport and/or immune therapy dynamics.

Position 4) Microfluidic technologies to develop strategies to study the fundamental processes of metastasis. This position will be joint with Dr. David Wood and requires a strong background in microtechnology, BioMEMs and/or microfluidics as it will also entail micro and nanofabrication as part of a collaborative appointment of the UMN Physical Science in Oncology Center Core.

Qualifications: A Ph.D. in Biomedical Engineering, Biophysics, Quantitative Biology, Immunology, or a related field and a demonstrated track record (1st author publications) of productive research is required. It is highly desirable that candidates be experienced in essential techniques in molecular and cellular biology such as tissue culture, infection of cells, PCR, Western blotting, IHC, IF, and fluorescent microscopy. Successful candidates must have excellent communication and organizational skills, the ability to develop creative approaches to experimental design and be able to work collaboratively.

About the Provenzano lab: We are an interdisciplinary cancer research laboratory fully equipped for routine cell and molecular biology work, experimental mechanics, advanced imaging, and computational analysis. In our lab we have a multiphoton laser-scanning microscope specially designed for intravital imaging experiments. Our laboratory is part of the Department of Biomedical Engineering (a top 25 ranked department), the Masonic Cancer Center (an NCI designated Comprehensive Cancer Center), and the UMN Physical Sciences in Oncology Center (PSOC) at the University of Minnesota (a vibrant and excellent research environment, currently ranking 8th among public universities and 13th overall in research expenditures; NSF). We are located in the Minneapolis (the 16th largest metro area in the US). In addition, Dr. Provenzano is a full member faculty of the prestigious Stem Cell Institute. Collectivity, these interactions provide critical support to our research program and represent a scientifically robust community that fuels our interdisciplinary research program. See provenzanolab.umn.edu for additional information.

To inquire or apply please write to provenzanolab@gmail.com with the subject line: LEO/PSOC Postdoctoral Position. Please include an up to date CV, 1-2 relevant publications, a brief statement of research interests and goals, and a list of at least 3 references (Letters of reference may be requested from these persons at a later date).