POSTDOCTORAL SCIENTIST IN STEM CELL AND ORGANOID CULTURE

UNIVERSITY: CLEVELAND STATE UNIVERSITY
DEPARTMENT: CHEMICAL AND BIOMEDICAL ENGINEERING
LOCATION: CLEVELAND, OHIO
MINIMUM QUALIFICATIONS: PH.D. IN BIOMEDICAL ENGINEERING, BIOTECHNOLOGY, MOLECULAR BIOLOGY, OR RELATED AREAS
SALARY: $40,000 – $47,000, DEPENDING ON EXPERIENCE
PROJECT START AND END DATE: 11/01/2018 – 10/31/2019, CONTRACT RENEWABLE ANNUALLY DEPENDING ON PERFORMANCE

A postdoctoral scientist position is immediately available in the Department of Chemical and Biomedical Engineering at the Cleveland State University (CSU). The ideal candidate will hold a PhD degree in biomedical engineering, biotechnology, molecular biology, or related areas who can carry out a NIH-funded, multi-institutional research project (UG3DK119982). Of particular interest are those candidates with strong background and hands-on experience in one or more of these areas: stem cell biology, organoid culture, immunofluorescence staining, high-content imaging assays, and molecular biology techniques. The successful candidate must be highly motivated in interdisciplinary research, will participate in the NIH-funded research project, and be mentored by Dr. Moo-Yeal Lee who is an expert in "3D bioprinting" and "tissue-on-chip" technology (http://academic.csuohio.edu/bioprinting/). This project is sponsored by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) and National Center for Advancing Translational Sciences (NCATS) for modeling type II diabetes in an integrated plate system. Drs. James Wells (Contact PI) and Takanori Takebe (Co-I) at Cincinnati Children's Hospital Medical Center, Dr. Eben Alsberg (Co-I) at Case Western Reserve University, and Dr. Moo-Yeal Lee (Co-PI) at CSU will develop a high-throughput, integrated plate system containing human pluripotent stem cell (PSC)-derived liver, pancreas, and intestine tissues to simulate normal/diseased mechanisms involved in inter-organ communication and investigate how hormones, nutrients, and drugs might mediate the reversal of type II diabetes. He/she will contribute to our efforts in developing highly-predictive *in vitro* toxicity/efficacy assessment platforms that are needed to rapidly advance therapeutic drug candidates to preclinical evaluations. He/she will establish PSC-derived human tissue culture (i.e., organoids) on a novel 256-pillar/perfusion plate platform and perform a suite of high-content imaging assays to detect critical changes in organoid/tissue morphology in 3D, cell functions, molecular actions on cell surface receptors, and mechanisms of drug action. Our lab has been focused on developing miniaturized 3D bioprinting technology on several microarray biochip platforms that offer new opportunities for regenerative medicine, oncology, and drug discovery. The candidate will work with several PhD students who are actively working in bioprinting of stem cells and primary human cells to create human tissue replicas (including liver, heart, and brain) on a high-throughput drug screening system. To apply, please email a cover letter, CV, and contact information for 3 references to Dr. Moo-Yeal Lee at m.lee68@csuohio.edu. For selected candidates, we will convene a Skype interview.

RELEVANT LITERATURE:

1. Yu, K.N., Kang, S.Y., Hong, S., and Lee, M.Y., High-throughput metabolism-induced toxicity assays demonstrated on a 384-pillar plate, ***Archives of Toxicology***, 92, 2501-2516, DOI: 10.1007/s00204-018-2249-1 (2018)
2. Joshi, P., Datar, A., Yu, K.N., Kang, S.Y., and Lee, M.Y., High-content imaging assays on a miniaturized 3D cell culture platform, ***Toxicology In Vitro***, 50, 147-159, doi: 10.1016/j.tiv.2018.02.014 (2018)
3. Lee, M.Y., **Microarray Bioprinting Technology: Fundamentals and Practices**, Springer, ISBN # 978-3-319-46803-7 (2016)
4. Kwon, S.J., Lee, D.W., Shah, D.A., Ku, B.S., Jeon, S.Y., Solanki, K., Ryan, J.D., Clark, D.S., Dordick, J.S., and Lee, M.Y., High-throughput and combinatorial gene expression on a chip for metabolism-induced toxicology screening, ***Nature Communications***, 5:3739 DOI: 10.1038/ncomms4739 (2014)