Monica M. Laronda, Ph.D.

Experience with biofabrication: I am an Assistant Professor in the Department of Pediatrics and Surgery at Northwestern University and Ann & Robert H. Lurie Children's Hospital of Chicago. During my postdoc training I was involved in the EVATAR project, a project that developed a microfluidics system that connected female reproductive tract organs and led the artificial ovary group that developed decellularization techniques and new materials for ovarian biology research. I was awarded the Burroughs Wellcome Fund Career Award at the Scientific Interface that supported my last year in training and jump-started my independent research lab. This award supported research of the bioprosthetic ovary, a 3D printed gelatin scaffold that was seeded with ovarian potential egg cells and hormone-producing cells and restored ovarian function in mice (Laronda, et al. 2017 *Nature Comm*). This research contributed to the broader field because it included investigations of 3D printed architectures that supported primary cell aggregates and was an example of an important utility for 3D printing in regenerative medicine research. My lab continues these investigations through foundational and translational research with the goal of improving fertility and hormone preservation and restoration options for patients at increased risk of premature gonadal failure due to a disease or treatment. We have mapped the native matrisome protein content and physical properties of the ovary and its matrisome using model organisms and human specimens. We are developed regenerative medicine technologies using human induced pluripotent stem cells. We are using bioengineering technologies including 3D printed scaffolds and micro-pattern surfaces to define how the external microenvironment influences folliculogenesis, the process of producing eggs, or ovarian hormone production. We bring a biological perspective to the engineering field as we have developed new biomaterial inks from decellularized and commercially available proteins to interrogate signaling pathways that influence cellular behavior, while also considering the mechanical properties that influence these cell aggregates in 3D. This research is funded by multiple National Institutes of Health grants.

Experience with the Society: I was first introduced to the International Society for Biofabrication (ISBF) in April 2018 by Prof. Dr. Jürgen Groll, who I met at the BIOGEL conference. I first attended the ISBF conference as a speaker and session chairperson that October. I have attended several bioengineering or related conferences and the ISBF annual conference hosts some of the most intriguing and highest quality science and, because of this, I look forward to the annual conferences. In 2020, I was excited to participate as one of the webinar speakers for the ISBF Seminar Series and enjoyed watching as an audience member. I have also shared these experiences with my trainees and a PhD candidate in my lab has presented his research at the 2021 annual conference.

Why I want to serve as a board member: I am a biologist by training and feel that I bring a unique perspective to the field. I have collaborated with material scientists, engineers, surgeons and clinicians and these collaborations continue to advance our understanding of gonadal biology and improve our ability to translate our discoveries. I value mentoring the next generation of researchers and clinicians and have experience sharing biofabrication technologies and concepts with several externally funded graduate students (MS, MD, PhD and dual degree) and postdoctoral fellows. I have been welcomed at ISBF and have learned a lot from bioengineers and materials scientists that I have met through society events. Our research is more robust because of the ISBF members who complement and challenge our approach. As we expand our research questions, I look to ISBF membership as a strong resource for innovative bioengineering and biofabrication technologies. I am invested in this field and this society and will continue to learn from its members. I gladly share my own unique perspectives with fellow professors, and trainees. I would be honored to represent ISBF and would work to implement the society goals of promoting the advancement of biofabrication research, education, and clinical applications.