

Subject: Application for ISBF Board of Director

Dear ISBF Members,

I am writing with great enthusiasm to support my nomination for the International Society for Biofabrication (ISBF) Board of Directors. I currently serve as a Group Leader at the AO Research Institute Davos (ARI), Switzerland, and as an Assistant Professor at the Complex Tissue Regeneration Department of MERLN Institute for Technology-Inspired Regenerative Medicine, Maastricht University, Netherlands.



With over 15 years of experience in the field of Biofabrication, my career has been internationally oriented, beginning with a Master's degree in Material Engineering (Italy), followed by two years in biomaterial research within the private sector. I completed my PhD (cum laude) in additive manufacturing for tissue engineering at IBEC, Spain, and have conducted research at various European institutions. I later joined the Royal Free Hospital (UCL, UK) as a postdoctoral fellow to further explore translational approaches. My contributions to the field of Biofabrication have been recognized with awards including the ISBF Young Investigator Award (2018), the BRIDGE Fellowship from SNSF-Innosuisse (2017), and the Julia Polak European Doctoral Award from the European Society of Biomaterials (2015).

Currently, my research group focuses on exploring innovative biofabrication approaches and stimuli-responsive materials for the repair, regeneration, and modeling advanced multicellular systems. We are pioneering novel bioassembly processes that leverage extrinsic fields, such as light, hydrodynamic waves, and magnetic forces, to organize cells into densely packed, hierarchically structured living systems.

We developed novel nanocomposite bio-inks and processes to create **anisotropic cell-instructive materials** and remotely controlled **soft robots**. Outcomes of this research activity opened to several applications such as muscles tissue morphogenesis (*Adv Funct Mat* 2019), stimuli responsive hydrogels for endoscopic manipulation (*Adv Int. Syst.* 2020), and tendons regeneration (*Biomater. Sci.* 2021).

Also, we developed and patented a revolutionary biofabrication technology, **Sound Induced Morphogenesis (SIM)**, a gentle, fast, and simple method to generate multi-cellular, spatially orchestrated tissue constructs using hydrodynamic waves (*Biofab* 2021, *Mat Tod Bio* 2022). This approach allows the patterning of particles or cells within different hydrogels in a matter of seconds, and using a layer-by-layer approach, thicker constructs can be rapidly produced (*Mat Tod Bio* 2023). Recently, we engineered multi-tissue innervation models with native-like structural organization and functional crosstalk, presenting vast opportunities for uncovering clinically relevant pathophysiology and discovering new treatments (*Adv Science* 2023).

From a **market translation** perspective, this technology was licensed in 2020 to [mimiX Biotherapeutics](#), a Swiss start-up I co-founded, where I served as Chief Scientific Officer until July 2022. MimiX has successfully completed an investment round to accelerate U.S. market clearance and launch a fully autologous product. Notably, the Swiss Academy of Engineering Sciences ([SATW](#)) featured SIM in their "Technology Outlook 2023".

In recent years, ISBF has made significant strides in enhancing its web presence, fostering industry engagement, and nurturing a vibrant community of young researchers. If elected, my mission will be to further support these initiatives, while connecting with the thriving Swiss healthcare biotech hub. With my involvement in multiple EU projects and experience organizing international conferences (AO Courses, TERMIS-EU 2017, ESB 2023), I am well-positioned to strengthen ISBF's ties with multidisciplinary, international networks.

I am also organizing the upcoming [ARI Orthopaedics Conference](#) in 2025, part of the AO Orthopaedic Research Summit, a joint venture with the European Orthopaedic Research Society ([EORS](#)) and the International Society for computer assisted orthopedic surgery ([CAOS](#)). **Biofabrication** will be the conference **topic**, and I look forward to collaborating closely with the ISBF Board of Directors to align our efforts with the forthcoming Biofabrication Conference in Warsaw.

Additionally, as a member of AO, a clinically oriented organization, I am committed to advocating for stronger connections between our society's scientists and a global network of surgeons. I envision establishing a forum for discussion that will foster fruitful interactions and collaborations.

For all these reasons, I kindly request your support in electing me to the ISBF Board of Directors. I am eager to contribute my expertise, passion, and vision to furthering the society's mission.

Thank you for your consideration.

Yours sincerely,
Tiziano Serra

