

## **Advanced Biofabrication Methods for Cellular Grafts**

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### **Abstract**

Of the many evolving biofabrication approaches, microextrusion bioprinting has been the most commonly applied in tissue engineering. In order to recreate complex geometries and large scale, the typical bioink used in extrusion bioprinting has required the use of viscosity enhancers and/or support materials to be effective. We have recently explored the class of bioinks called 'jammed', granular or microgel materials for extrusion bioprinting. In our case, we work with microgels with high aspect ratio and ability to entangle with each other. These entangled bioprinting materials are less subject to flow instabilities, have natural macroporosity and orientation and can be used in a modular, multimaterial and multicellular approach. In this lecture, entangled microgel bioinks are explored in the context of cartilage engineering.

### **Biography**

Dr Marcy Zenobi-Wong is an Associate Professor of Tissue Engineering and Biofabrication at ETH Zürich, Switzerland. She obtained her PhD from Stanford University and then did a post-doctoral fellowship in the Orthopaedic Research Laboratories, University of Michigan. In 2012, she moved to the Department of Health Sciences & Technology at ETH Zürich. The Zenobi-Wong research group is focused on the development of advanced biomaterials for tissue regeneration using biofabrication technologies including bioprinting, two-photon polymerization, casting and electrospinning. Dr Zenobi-Wong is the author of over 95 peer-reviewed publications and co-inventor on four licensed patents. She is currently President of the Swiss Society for Biomaterials and Regenerative Medicine and General Secretary for the International Society of Biofabrication (ISBF). She serves on the editorial board for Biofabrication and Advanced Healthcare Materials.

