

Wednesday, November 8, 2017

LSC 3 | 12:00 - 1:00PM



## Tamer Mohamed

*President and Chief Executive Officer*

*Aspect Biosystems*

*“Tissue engineering with next generation Lab-on-a-Printer bioprinting technology.”*

In order to mimic the complex heterogeneity and microstructure of tissue, we are developing a novel bioprinting paradigm called Lab-on-a-Printer (LOP). The LOP concept involves integration of microfluidic liquid manipulation directly with deposition technology and allowing for real-time programmability of bioink composition and the ability to multiplex multiple material inputs into one output dispenser. Since dispensers are not interchanged during printing, the platform is not prone to tip misalignment errors or inter fibre start-stop defects, which contributes to potentially significant reductions in print time in comparison to a syringe-based platform. With co-axial flow focusing, we are able to generate fibre with very high cell density while printing at high fibre speeds, whereas users report that the speed of syringe-based platforms can be limited by shear induced cell death at high cell density. Material switching is enabled via proprietary software that coordinates microfluidic function with the tool-path. The LOP device is integrated with a 3-axis 3D printer, and facilitates seamless on-the-fly switching between bioinks, and is capable of printing complex, heterogenous tissue structures.

**Live Online Seminar Viewing:**  
<http://tinyurl.com/cbrseminaronline>