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Title

Development of novel microfluidic devices for scalable manufacturing for point-of-care diagnostics

Abstract

Microfluidic-based devices have a tremendous potential to enable precise and personalized health monitoring and care at point-of-need. At the National Research Council of Canada (NRC) we design and fabricate microfluidic devices to automate complex, multi-step assays for bio-diagnostics. We use novel centrifugal and continuous flow platforms to combine sample preparation together with advanced bench-top protocols to enable automated extraction and analysis of cells, RNA, DNA and protein biomarkers from whole blood, saliva and cell culture media samples. The presentation will focus on efforts to fabricate all-plastic devices with integrated, microstructured features using specialized, but scalable injection molding techniques. Specific device and application examples will be drawn from NRC's recent Pandemic Response Program as well as ongoing collaborations with Health Canada and the Canadian Space Agency.