# Micro and Nanomolding for Precision Medicine

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Precision medicine focuses on identifying which therapies are most effective for a patent based on genetic, environmental, and lifestyle factors. In order to realize the precise medicine, the ability to obtain huge genomic data is critical and thus it is imperative to develop a new tool to enable it. Multi-scale fluidic systems have the potential to greatly accelerate the time to an answer for clinicians, escaping the paradigm of waiting for blood or fluid samples to go and return from a clinical laboratory, and leading toward an era of truly personalized medicine. While many of the instruments used in molecular analysis are similar, the software – the reagents, sequence of steps, and time required for each assay - are frequently different. The goal of the NIH Center for BioModular Multiscale Systems for Precision Medicine (CBM2) is to design, produce and deliver to the medical community mixed-scale tools for analyzing circulating biomarkers for disease management for precision medicine. A modular approach to device and system architecture is used, which will allow the assembly of a toolkit of different devices into disease-specific instruments.

This talk will discuss how micro and nanomolding can contribute to manufacturing the designed bioanalytic devices and systems for precision medicine. Micro and nanomolding techniques have been used to produce polymer modules at high rate, potentially lowering the cost of the information and making it more widely accessible. Several challenges to achieve multiscale, modular bioanalytic devices through micro and nanomolding will be identified and discussed.