**Development of a microfluidic environment for a novel hematology diagnostic device**

Sponsor: Alentic Microscience Inc.; Dr. Alan Fine

Alentic Microscience Inc. is a Canadian-based company that has developed a portable point-of-care instrument that enables the medical community to perform high-precision blood counts in the field, in minutes, using a pinprick of blood. The current implementation requires several manual steps during the operation. The work proposed here will evaluate how a microfluidic environment can be applied to the current system to automate those manual steps and improve the system reliability.

The work involves the deposition, formation and characterization of microfluidic channels on PCB with a dynamic compartment to define the measurement volume. The measurement procedure requires mixing with various reagents to facilitate the blood count and to clean the flow path between successive specimens. A valve and pump system needs to be specified an implemented. The fabrication of complete prototypes including an electronic control unit would be the deliverable of this CapStone project.