A product to meet these needs is currently under development. It achieves this through a highly automated workflow, enabled through the use of microfluidics.

[0007] Moreover, different reactions may last over very different time periods. For instance, one endpoint assay may take less than a few minutes to run and the other may take more than ten minutes to run. In many conventional settings, one has to synchronize all the chemistries to finish at the same time and then perform the measurement. Further, different assays may rely on different wavelengths for illumination or detection. For a large number of assays, this may take a significant amount of time and resources, and in some cases may not be practical.

[0008] Accordingly, there remains a need for improved devices, systems and methods for performing a large number of reactions and analyzation in parallel using microfluidics technology, allowing for user-friendly and point-of-care deployment of such technology.

SUMMARY

[0009] In one embodiment, there is a system including a plurality of analytical modules, each configured for receiving a corresponding microfluidic disc and performing optical analysis of a corresponding biological sample. The plurality of analytical modules is capable of performing a suite of tests; and the plurality of analytical modules comprises two or more of: an analytical module configured for receiving a first microfluidic disc and measuring one or more hematological parameters; an analytical module configured for receiving a second microfluidic disc and performing an immunoassay; or an analytical module configured for receiving a third microfluidic disc and performing a clinical chemistry analysis. In some embodiments, analytical modules in the plurality of analytical modules are capable of performing optical analyses independently of each other or concurrently with each other. In some embodiments, the plurality of analytical modules are capable of performing a full suite of tests.

[0010] In some embodiments, the one or more analytical modules include a first analytical module configured for receiving a first microfluidic disc and measuring one or more hematological parameters, a second analytical module configured for receiving a second microfluidic disc and performing an immunoassay, a third analytical module configured for receiving a third microfluidic disc and performing a clinical chemistry analysis, or any combination thereof.

[0011] In some embodiments, the system includes a gripper configured for transporting the corresponding microfluidic disc to or from each of the one or more analytical modules, a holder configured for holding one or more sample tubes, a rocker configured for mixing or homogenizing

one or more biological samples in the one or more sample tubes, a capping/decapping device configured for decapping and/or recapping a cap from a sample tube in the one or more sample tubes, a drawer configured for receiving consumables, a pipetting device configured for pipetting the