The microfluidic LabTube platform
Assay automation in laboratory centrifuges

The LabTube is an innovative microfluidic cartridge for the automation of diagnostic tests and biological assays using laboratory centrifuges.

Microfluidic lab-on-a-chip platforms allow the miniaturization, automation and integration of liquid handling. As a major drawback, however, the majority of lab-on-a-chip systems require highly specialized processing instruments, leading to high investment costs. With the LabTube platform we close this gap and present an innovative cartridge that uses a low-cost standard laboratory centrifuge as processing device.

The LabTube has the size of a standard centrifuge tube and composes various elements for sample loading, reagent pre-storage and downstream processing of the reagents. The selective release and application-dependent processing of the reagents (e.g. mixing, valving, and solid-phase extraction) is achieved by a centrifugally driven ball pen mechanism.

The competitive functionality of the LabTube has successfully been demonstrated with human, bacterial and viral DNA extractions from human blood samples as well as protein purification from plant samples. Further applications are under development such as: the fully integrated point-of-care diagnosis of bacterial and viral infections from different sample material; the analysis of waste and drinking water for bacteria; or the detection of human pathogens from food samples.

The LabTube platform offers the fully integrated, fast, secure and low-cost automation of diverse laboratory processes.

Would you like to apply your assay on the LabTube? If yes, or if you have further questions, do not hesitate to contact us.
We are looking forward to get in touch with you!

Key features
- The LabTube is processed by a low-cost laboratory centrifuge.
- The disposable LabTube cartridge is manufactured by injection molding and therefore compatible with mass fabrication.
- The assay procedure is automated by a centrifuge-triggered ball pen mechanism.
- The hands-on time is low and limited to sample input only.
- The LabTube procedure is secure and prevents the risk of contaminations.
- The handling is easy and user-friendly with no need for trained personnel.