

# LabDisk

## Automated Detection of Botulinum Toxin

**The LabDisk platform allows for point-of-care detection of botulinum toxins in less than 30 minutes.**

Botulinum toxins belong to the deadliest neurotoxins that cause life-threatening botulism. In addition to its particular prominence for medical and cosmetic use, botulinum neurotoxin has been categorized as a bioterrorism agent with the highest priority i.e. as a weapon of bioterrorism.

We developed a system for the detection of botulinum neurotoxin type A based on a highly sensitive luciferase reporter assay automated by the centrifugal microfluidic LabDisk platform.

The assay is based on the detection of the toxin's proteolytic activity and generation of bioluminescent signal. After initial loading of sample and buffer into the LabDisk all subsequent processing steps including the final detection are performed automatically by the LabDisk Player in 30 minutes.

The LabDisk is a disposable the size of a regular DVD (12 cm diameter) comprising of seven identical test structures (Figure 1). All the seven tests on a disk are performed simultaneously in a single run (Figure 2).

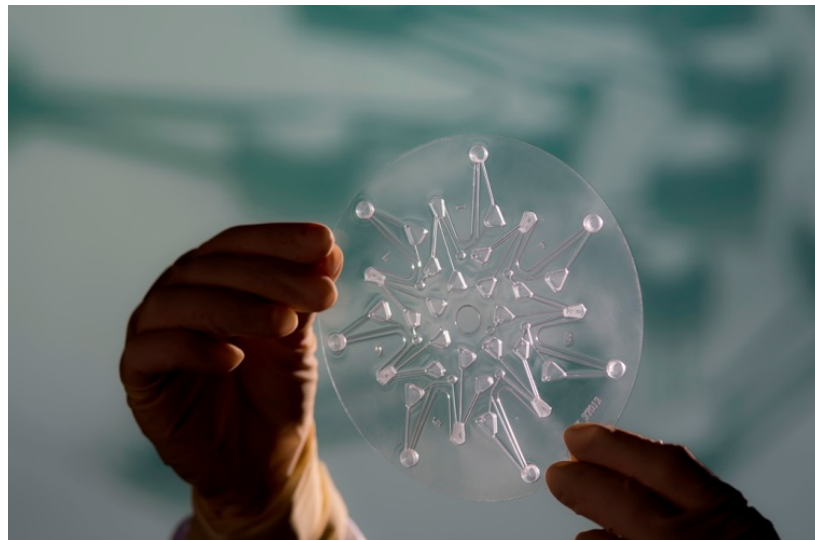


Fig. 1: Disposable microfluidic LabDisk for the detection of botulinum toxin

### Key features

- Point-of-care detection of botulinum toxin
- Food and environmental samples
- Qualitative and quantitative analysis in < 30 minutes
- Fully automated analysis
- Disposable microfluidic disk (LabDisk)



Fig. 2: Centrifugal LabDisk player

The developed assay has a higher sensitivity than the commercially-available point-of-need devices for BoNT detection and previously developed BoNT assays for point-of-care. Moreover, it detects a broader range of BoNT types and enables the determination of precise BoNT

concentration. Only 6 µl of environmental, food or clinical sample is required for one test.

In collaboration with

