



Fast, Flexible Platform for Handheld Microfluidic Cell Assays

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WARF: P120238US01

Inventors: Erwin Berthier, David Guckenberger, David Beebe, Peter Cavnar

The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a rapid and economical prepackaged kit-on-a-lid (KOALA) chip integrating the reagents required for any *in vitro* cell-based assay.

Overview

Identifying pathways involved in human diseases is the first step in the discovery of targets for therapy and diagnostics. Cell-based assays conducted *in vitro* are powerful tools in this process. Reconfiguring different types of assays and their various cells, however, often presents a technical challenge and requires a high outlay of materials and researcher labor.

Significant need remains for a convenient, economical solution that places more efficient tools in a greater number of hands by maintaining device simplicity both in operation and manufacturing.

The Invention

UW–Madison researchers have developed a new microfluidic device design, KOALA, which can perform assays in five-minute steps without reagent waste or time-consuming preparation.

The chip comprises a disengaging lid and base. The lid is networked by channels with protruding inputs while the base features multiple fluid wells and an absorbent pad. When the two components are pressed together, fluid from the wells is drawn into the channel by the pad's capillary action.

Additional functionalities, like creating gradients with a diffusing source, also are achievable given the design's passive fluid contact at the channel extremities. Packaged with the reagents and cells required of the assay and enabling encapsulation and freezing, KOALA is an eminently accessible and flexible assay tool.

Applications

- Virtually any *in vitro* cell-based assay

Key Benefits

- Simple to operate and manufacture
- No external components or membranes
- Prepackaged reagents conserve time and limit waste.
- Connected channels make assay scalable without manual pipetting.

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Additional Information

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Wisconsin Alumni Research Foundation

| info@warf.org | 608.960.9850

For More Information About the Inventors

- [David Beebe](#)

Related Technologies

- [For more information about a functionalized microfluidic lid platform that enables the handling, freezing and thawing of cell suspensions, see WARF reference number P110339US01.](#)
- [See an example of how the KOALA technology could be used.](#)

Tech Fields

- [Analytical Instrumentation, Methods & Materials : Microfluidics](#)

For current licensing status, please contact Jeanine Burmania at jeanine@warf.org or 608-960-9846

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