



Your Research Partner for Photonics Solutions

CENTRE FOR  
ADVANCED PHOTONICS  
& PROCESS ANALYSIS

CAPPA

Innovation Through Light

## Wide Field Fluorescence Imaging System



### Irish MedTech Awards 2018 Category Finalist

CAPPA and Hooke Bio have been shortlisted as one of three finalists in the category **Academic Contribution to MedTech** for the Irish MedTech Awards 2018. Hooke Bio is an emerging biotech company focused on the development of high throughput and high content testing platforms for faster and more effective drug screening. The nominated project is developing a wide field fluorescence imaging system.

### The Problem: Need for Microfluidic Screening

There is an important unmet need for new medicines that can be mediated by the use of ultra-high-throughput microfluidic screening. In drug discovery, pharmaceutical companies screen thousands of possible drug candidates against disease models. However some 95% of new drugs fail during development, with many failures attributed to efficacy and safety issues as the industry currently does not have the capacity to screen every possible drug candidate, concentration or vary the drug efficacy safety tests due to sheer numbers. **High-throughput screening is required to screen vast numbers of drugs** and drug combinations, as their effects on cells are difficult to predict. As a result, the testing of such drugs becomes an engineering issue.

### The Hooke Bio Solution

Hooke Bio has developed a platform that runs screening tests 20 times faster and at a quarter of the cost of current commercial systems. The Enigma Platform integrates dispensing, incubation and measurement on one platform without the need for robotics. In addition to being faster and cheaper, it can also undertake 3D cell culture. This means pharmaceutical companies can test new drugs against more physiologically relevant cell disease models.



[www.hookebio.com](http://www.hookebio.com)

**Hooke Bio** is a new pharmaceutical company operating in the preclinical to early stages of drug discovery. It draws its strength from the close co-operation it has between its biologists and engineers. The engineers design, patent and test new microfluidic technology: the scientists apply the technology to finding new therapeutics. Such an approach requires very high throughput automated testing at small volumes with relevant, translatable disease models. Their primary focus is on drug combinations.

### CAPPA has assisted Hooke Bio with:

- **Developing the photonics**
- **Imaging and image analysis elements**
- **Improving the system from a single line test unit to an 8 \ 16 line unit**
- **Designing and prototyping a bespoke imaging system**
- **Integration with a tailor made software solution**



"I would happily recommend CAPPA because of their high levels of expertise. CAPPA are very flexible and willing to engage with industry. I wouldn't even know where to look for the service in the country and probably in Europe" – Mark Lyons, CEO

### Benefit for Patients

- **Personalised combination screening could become a reality and would remove the element of uncertainty that surrounds chemotherapy**
- **Employing combination screening and drug repurposing could be used to treat a wide range of diseases such as cancer and heart disease**

### Benefit for Healthcare System

- **Integration of dispensing, incubation and measurement on one platform without the need for robotics**
- **Ability to test new drugs against more physiologically relevant cell disease models**
- **Unlimited drug screening at the early crucial drug discovery phases**



MTU

Ollscoil Teicneolaíochta na Mumhan  
Munster Technological University

Web: [www.cappa.ie](http://www.cappa.ie) Email: [cappa@cit.ie](mailto:cappa@cit.ie) Twitter @cappa\_ie Phone: +353 21 433 5338

Post: CREATE Building, Munster Technological University, Bishopstown, Cork, Ireland, T12 P928

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