

MMP

Microfluidics Manufacturing Programme



FROM DESIGN TO MANUFACTURING

Manufacturing microfluidic devices taps on the capabilities arising from multidisciplinary fields such as chemistry, physics, engineering, microtechnology and biotechnology. These devices consist of sub-millimetre sized channels that can be used to control the movement of nano, and even picolitre volumes of fluid. The applications of microfluidic devices are diverse, ranging from ink-jet printing to lab-on-chip and are widely used in biomedical research and diagnostics, chemical processing, water monitoring/processing, and alternative energy exploitation.

Mission

To develop, test and implement polymer manufacturing technologies for microfluidic applications to nurture and grow the microfluidics industry.

Core Competencies

As a solution provider for microfluidics manufacturing, SIMTech Microfluidics Foundry offers:

- Design, prototyping, and production services of microfluidic devices
- Supply of polymer-based microfluidic devices to the industries
- Accessories and tools for microfluidics applications
- Development of microfluidics devices and systems for medical diagnostics and industry application

Target Industries



Biomedical Research



Medical Diagnostics

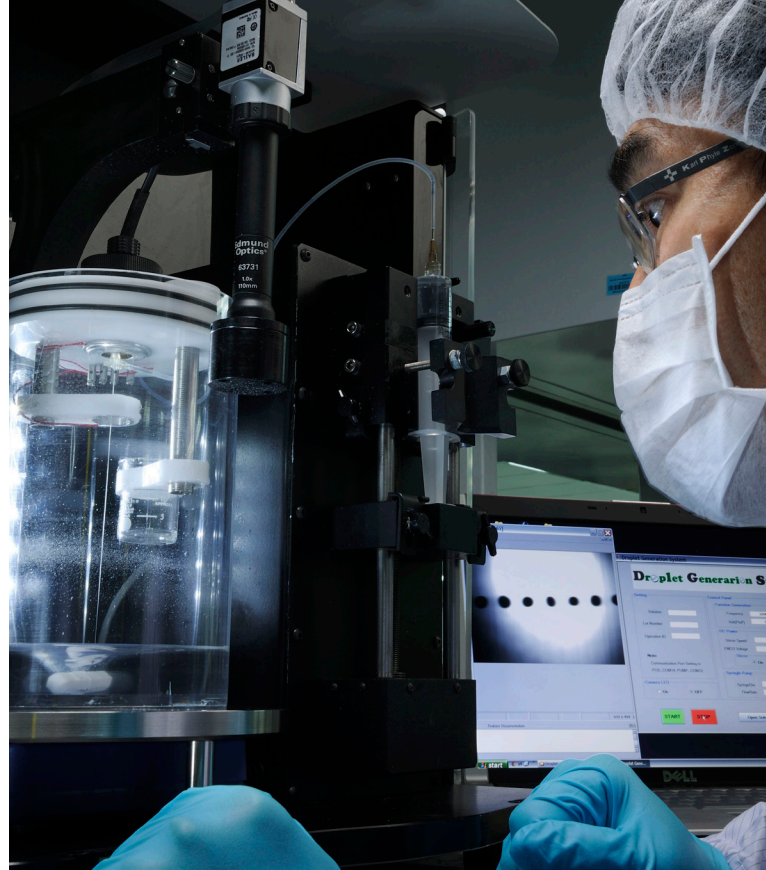


Chemical Processing

SUCCESS STORY

Microfluidic Droplet Generator Meets Stringent International Standards of Healthcare and Pharmaceutical industry

When Austrianova, a life science and biotech company with a global footprint that encapsulates living cells in bio-inert polymers, was looking for a solution for Good Manufacturing Practice (GMP) compliant cell encapsulation process, microfluidics approaches were conceptualised and proposed. To alleviate the challenges, Austrianova engaged SIMTech to design and develop a customised high throughput droplet encapsulator using a single phase-flow microfluidic droplet generation technique developed and patented by SIMTech. The microfluidic droplet generator is not only contamination-free but also meets stringent international bio-manufacturing compliance.



“As a result of the collaboration, Austrianova has successfully used the new droplet generation systems in its manufacturing plant,,

Dr John Dangerfield, Chief Operating Officer, Austrianova Singapore

Technologies Available for Transfer

- Hot embossing system
- Fluid pumping and control system
- DNA auto extraction system
- Protein profiling system
- Droplet generator
- On-demand-droplet generator

Research Partners

- Genome Institute of Singapore (Singapore)
- Institute of Materials Research and Engineering (Singapore)
- Institute of Medical Biology (Singapore)
- Institute of Molecular and Cell Biology (Singapore)
- Nanyang Technological University (Singapore)
- National University of Singapore (Singapore)
- University of Cornell (USA)

