

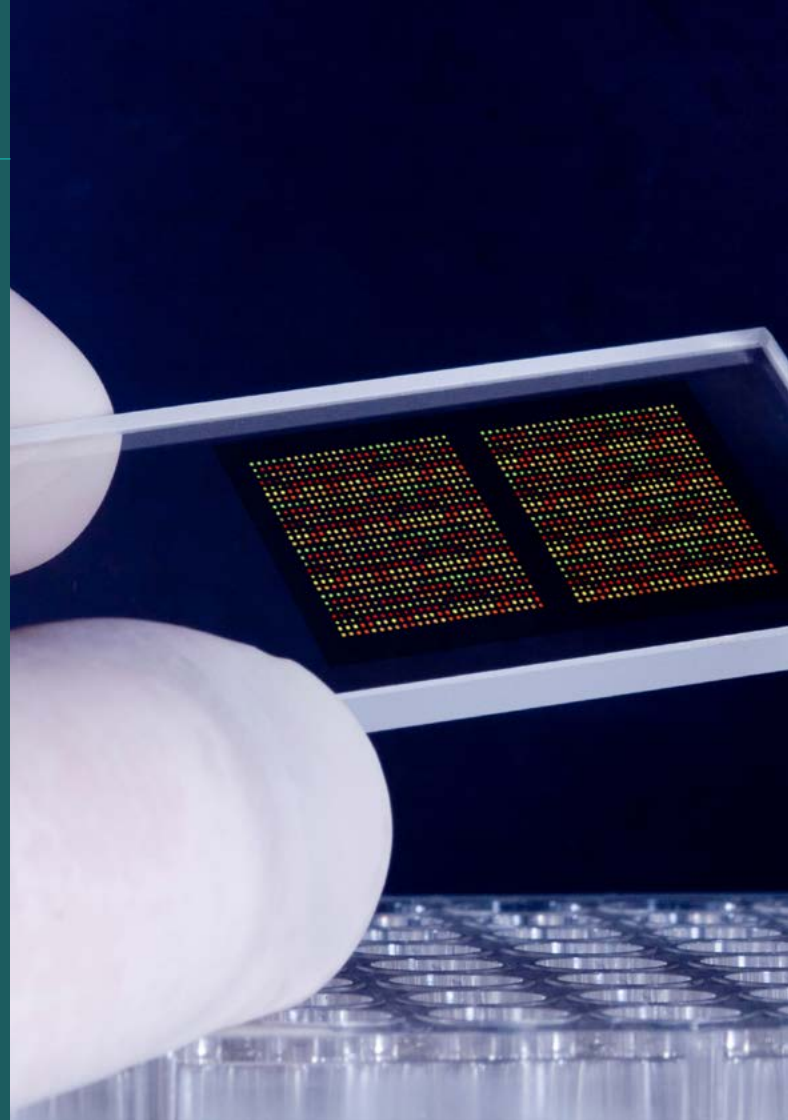
Re-design of a diagnostic consumable



**A project to re-design a medical device
to simplify assembly, reduce production
cost and improve function by using
microfluidic geometries**

Expertise and domain knowledge

- Medical
- Diagnostic consumable
- Microfluidic design
- COMSOL



Our client asked:

A market leading medical diagnostic consumable, handling both blood and water, needed to be redesigned to increase repeatability of its fluid motions. No surface treatments could be considered on this moulded part, so microfluidic design techniques were required.

The project story:

After defining the sequence of fluid motions required within the device, we developed a COMSOL model, tested this with prototype parts and generated a design which is now in tooling. Specific functions achieved:

- Required blood sample accurately metered with tolerance of +/-1 μ l
- Known volume of water wicked through capillary network within a set time
- Repeatable pattern of 5 μ l air bubbles generated

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Results: deliverables and outcomes

- Marked reduction in part count, production cost and simplified assembly
- Diagnostic precision increased through reduced variability of fluid motion