

ROLL-TO-ROLL PILOT LINE FOR LARGE-SCALE MANUFACTURING OF MICROFLUIDIC DEVICES

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Roll-to-roll (R2R) technologies with roller-based nanoimprinting methods enable manufacturing of highly cost-effective and large-scale sheets of flexible polymer film with precise structures on a micro- and nanoscale 1. Areas that can benefit strongly from such large scale technologies are microfluidics, biosensors, and lab-on-chip products for point of care diagnostics, drug discovery and food control. Here, R2R fabrication could greatly reduce production costs and increase manufacturing capacity with respect to currently used products. A pilot line with this technology is investigated in the European Horizon 2020 project R2R Biofluidics and its capabilities are tested on two Demonstrators:

- Demonstrator 1: In-vitro diagnostic chip with imprinted microfluidic channels based on optical chemiluminescence measurement by photodetectors.
- Demonstrator 2: Neuronal cell culture plate with imprinted cavities and channels for controlled culturing and fluorescence imaging of neurons, for high throughput drug screening.

The R2R pilot line will be presented together with results from simulation, mastering, shim fabrication, roll-to-roll imprinting and first fluidic experiments for both demonstrators.

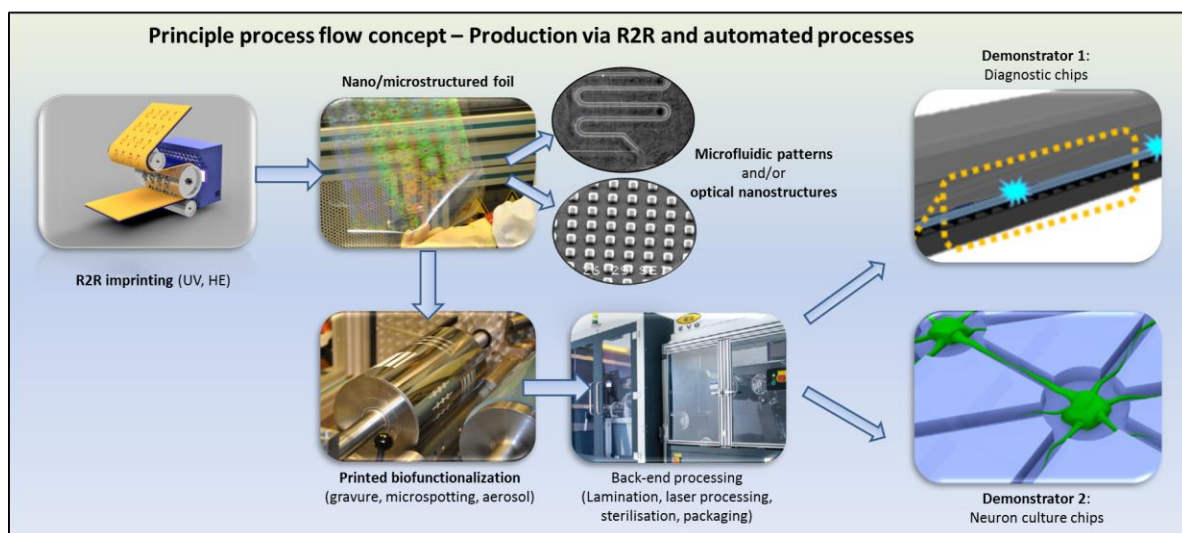


Figure 1 – Process concept of the project R2R Biofluidics.