Microfluidic Nanobiosensors for the Analysis of Minimal Residual Disease in Acute Myeloid Leukemia

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Precision medicine has changed the healthcare paradigm by introducing molecular diagnosis techniques that, combined with liquid biopsy, make non-invasive personalised diagnosis possible. However, the wide implementation of these techniques in clinical routine is far from reality (1).

Microfluidics has demonstrated numerous advantages for isolation and characterization of liquid biopsy biomarkers in oncology (2). These systems can be coupled with embedded biosensors to quantify disease biomarkers with increased sensitivity and throughput, enabling their implementation in clinical routine (3).

In this talk, I present our most recent work in the development of liquid biopsy assays for integrated isolation and analysis of multiple circulating biomarkers and their validation in clinical settings (4). Main focus will be given to the extraction of blasts from blood and their genetic profiling for the assessment of minimal residual disease in Acute Myeloid Leukemia (2).

References

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Figures

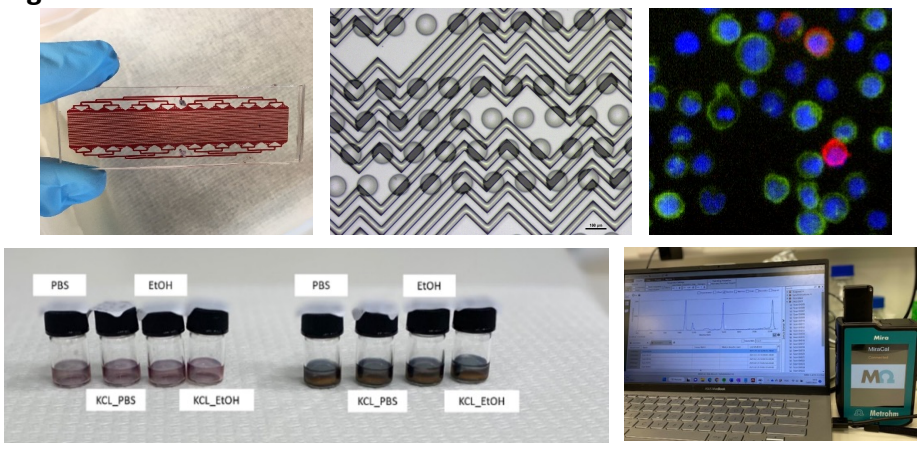

Figure 1: Microfluidic devices for extraction of leukemic blasts (top), and plasmonic nanobiosensors for their analysis (bottom).