

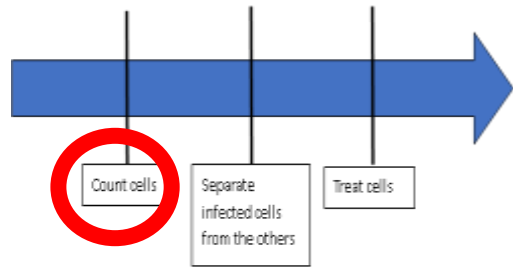
# Mitthic project

## Integrated Microfluidics for Intra-Cellular Therapeutic Treatment in Flow.

### Context and Objective

#### Advancing cancer treatment:

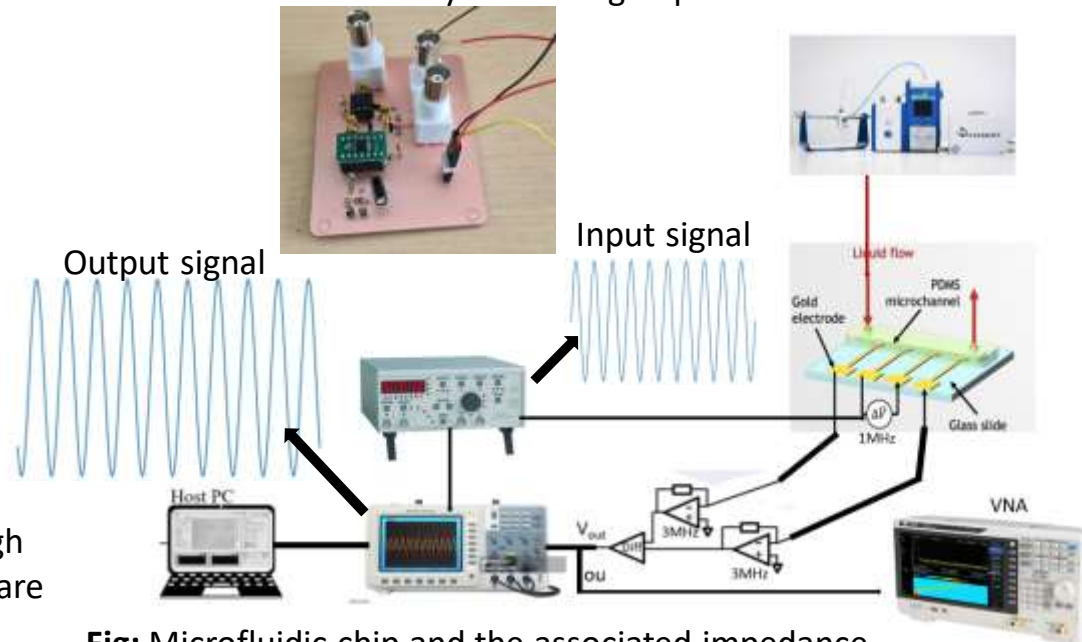
A new technique using microelectrodes in microfluidics to isolate tumor cells from blood for precise diagnostics and personalized therapy.



The main objective of this project is to count the number of cells passing through the microfluidic channel. COMSOL software is used to carry out simulations on the existing device and to propose the new device. Design a data acquisition card to measure impedance.

### Approach

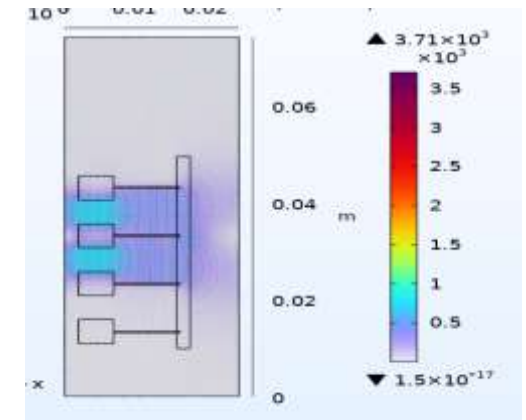
The experimental set-up above enables the cells passing through the microfluidic channel to be counted by measuring impedance.



**Fig:** Microfluidic chip and the associated impedance measuring system.

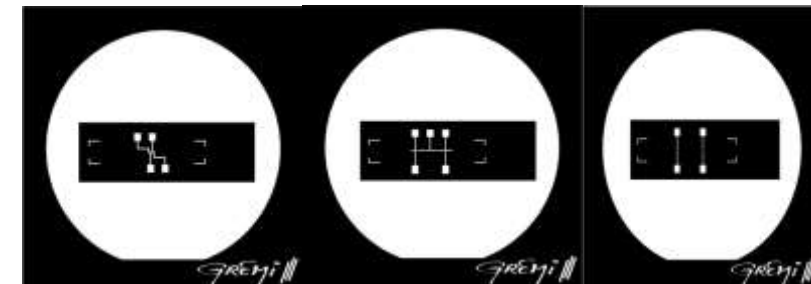
### Simulation

Simulation of the current device and its improvements on COMSOL.



The existing device does not correspond to the application of this project because we can observe on the figure above a low intensity of the electric field, hence the need to design a new device.

#### Different mask for the new device



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