Next stop

Proposition accompanying the thesis

Next stop: screening-on-a-chip. Where biology meets scalability. Development of assays for placenta-on-a-chip models

1. "Organ-on-a-chip (organ chip) microfluidic culture devices represent one of the recent successes in the search for *in vitro* human microphysiological systems that can recapitulate organ-level and even organism-level functions." (Donald Ingber, 2022 *Nature Reviews Genetics*)
2. Quantitative assays require control conditions, standardization and robust data analysis to make the assays scalable, replicable and reproducible. (This thesis)
3. In on-a-chip models to quantify the permeability of the barrier is necessary to use a cell-free chip as a control which presents a highly permeable barrier quantifiable through a new data analysis approach for leaky barrier. (This thesis)
4. To develop physiologically relevant *in vitro* models which recapitulate organs or processes, like placenta or angiogenesis, where oxidative stress plays an important role, ROS quantification should be a routine characterization. (This thesis)
5. On-a-chip technology has reached a mature stage where complex and physiologically relevant biology is combined with scalability, rendering them a valid alternative to traditional *in vitro* 2D cell culture. (This thesis)
6. L'esperienza è l'accumulo del da farsi davanti all'imprevisto. (Adapted translation: *Experience is the accumulation of what to do to cope with an unexpected event).* (Primo Levi)
7. Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less. (Marie Curie)
8. Progress is made by trial and failure; the failures are generally a hundred times more numerous than the successes; yet they are usually left unchronicled. (William Ramsay)