

CellSine

Case Study

Case: Suspension Cells

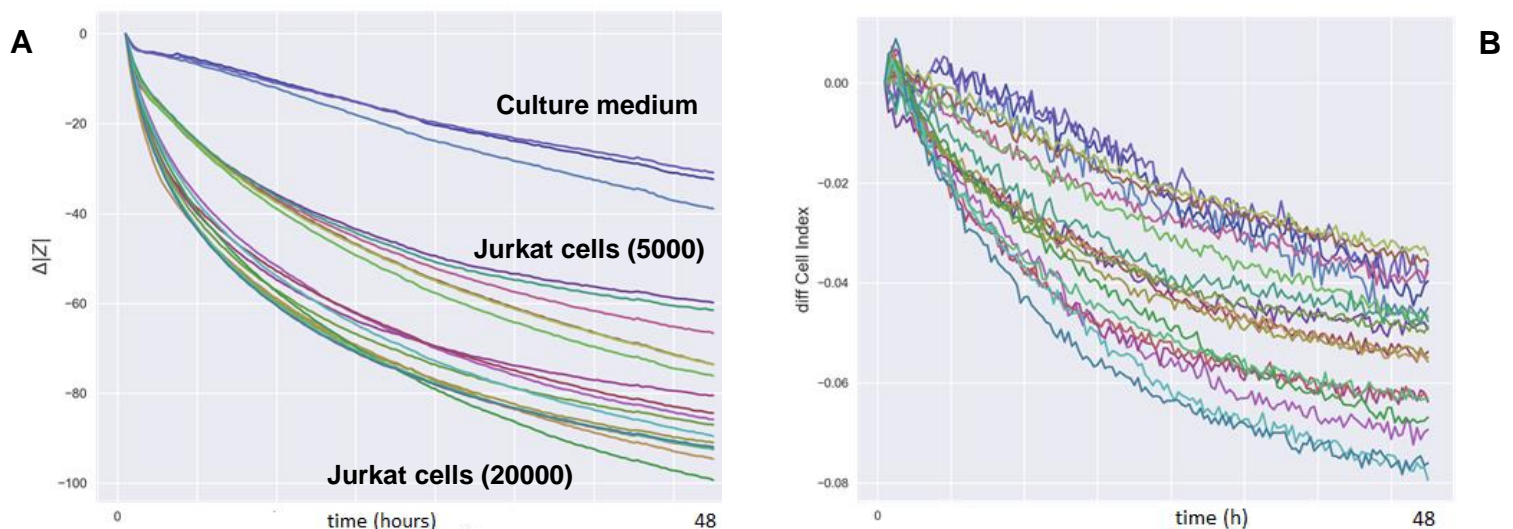
In vitro cell-based screening efforts require a straightforward read-out, low variation and preferably require limited hands-on time. Even though this is often feasible for adherent cell types, for suspension cell lines this is less convenient.

Suspension cells are associated with high variation and labor-intensive wash steps. Moreover, dynamic microscopic observations require fixed cells to track cells over time. This is inconvenient using suspension cell lines. Hence, a microbiologist loses one of his most important assets to study suspension cell lines.

Suspension cell lines are a remarkable tool to investigate a plethora of cellular phenomena including immune responses, cancer research and cell migration assays.

Results:

Using CellSine technology, we have developed an assay that allows accurate label-free monitoring of suspension cell lines. Up to now, the so-called Cell Index was most commonly used to track cell culture behavior using impedance. However due to its limited frequency range it is only suitable for adherent cell cultures. By tracking the full impedance behavior of the cells, we have established that the optimal frequency range to study suspension cells lies around 5 kHz. This allows us to accurately monitor cell growth and gather quantitative information on cell numbers.



Figures: panel A shows the evolution of the impedance amplitude for different populations of Jurkat suspension cells at 5 kHz. Panel B shows the evolution of the commonly used Cell Index for the same populations of Jurkat cells

