Flowcytometric-based approach to investigate prostate tumor microenvironment.

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Prostate cancer (PC) and its tumor microenvironment (TME) are heterogenous and evolving along with the treatment patients are exposed to. Modelling of the TME represents an attractive approach to understand how PC evolves and spreads.

Flow cytometry is a technique for quantitative measurement of single cell profiling based on the cell surface as well as intracellular markers.

We designed a flowcytometric based approach to investigate the interplay between the PC cells and immune cells in a direct coculture. Cells are fluorescently tagged with a cell tracer and the analysis is performed separately on the adherent and non-adherent cells.

To optimize the readout method, we investigate the interplay between Jurkat cells and PC cells (LNCaP) as well as immortalized prostate epithelial cell models modified to mimic early events in prostate carcinogenesis (RWPE-1 cells overexpressing androgen receptor, RWPE-1-AR, and having PTEN deletion, RWPE-1-AR-PTENdel).

Jurkat (suspension culture) cocultured with LNCaP (adherent culture) exhibited 40% decrease in viability but only 30% of LNCaP dying cell in the floating population compared to LNcaP only which is 60%. When Jurkat were activated using Phorbol 12-myristate 13-acetate (PMA), we observed an increase in LNCaP cell death**.**

Jurkat viability was not impacted in presence of RWPE-1 neither when exposed to RWPE1-AR-PTENdel.

In summary our **Flowcytometric-based approach will help to understand the interplay between immune cells and prostate cancer cells.**