# Wound Healing Assay

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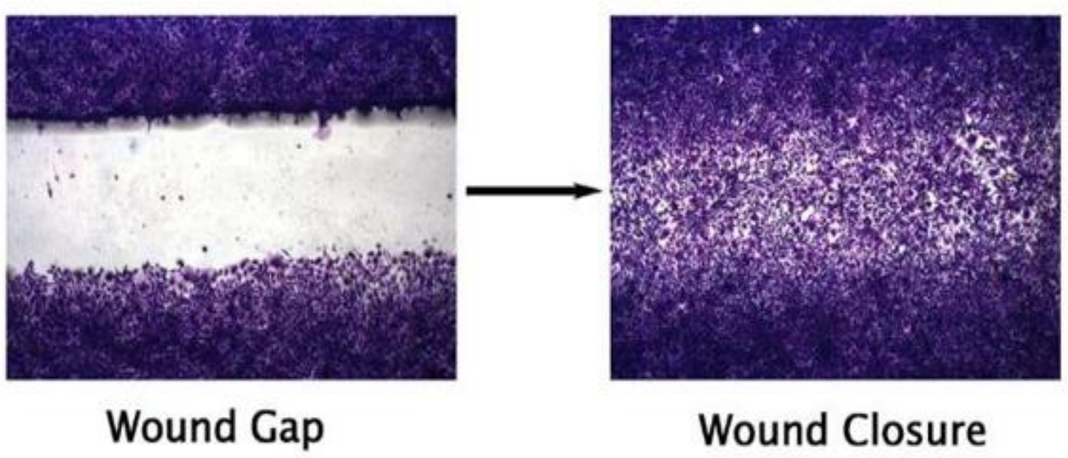
PURE Project

## Introduction

Wound healing assay is one of the earliest, cheapest and in-expensive method used to study directional cell migration. This method allows us to observe adherent cells and how they are reacting a 'wound' in vivo.

It can be done by simply scratching the cell monolayer and observe the healing process step by step.

This process allows us to understand the cell-matrix and cell-cell interactions on cell migration.



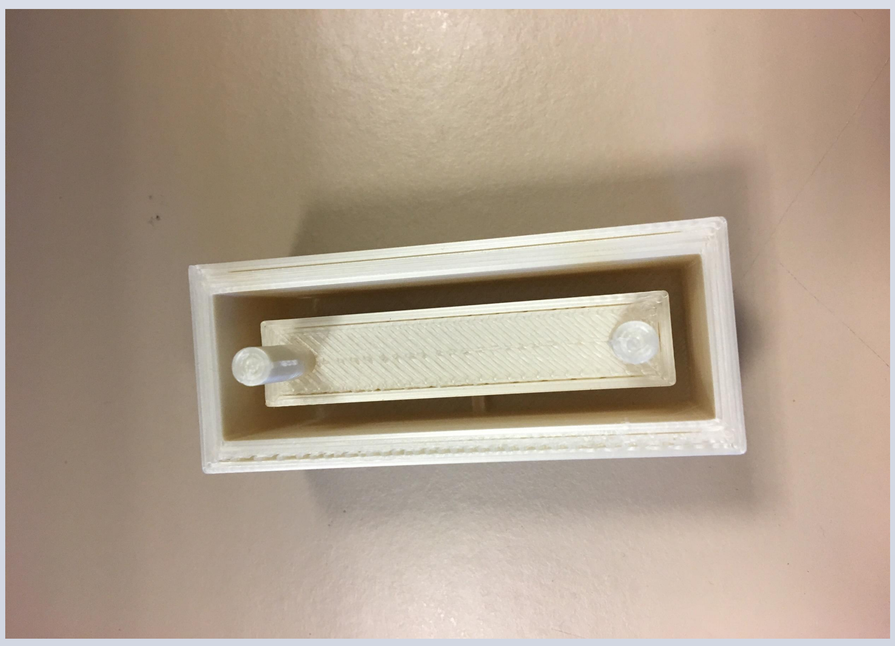

The Figure above resresents the wound healing process in 2-dimensional (2D) conventional format. Cells migrate the wounded area and it is called the 'healing' process.

## Objectives and Device

Wound healing assays are usually performed in the conventional two-dimensional (2D) cell monolayer format.

In this project it would be possible to examine the cell-cell and cell-matrix interactions in a 3-dimensional (3D) concept.

Study cell polarization, matrix remodeling, estimate cell proliferation and migration rates of MCF7 cells in 3D form with the new design.

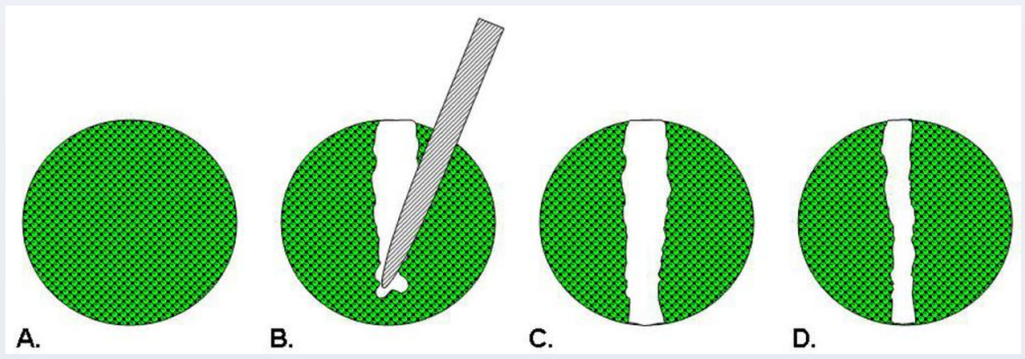


This device will allow us to analyze the migration rates of cells in 3D format. It is known that cells act differently when they are in 3D format. The mold in the figure above will be used for the experiments.

## Project Details

Wound healing assay can be done in 3 simple steps: wounding(B), monitoring(C) the healing process of the cells(D), data gathering and finally, evaluation of the gathered data.

Wounding is a simple scratching or removing the cells in a particular area.

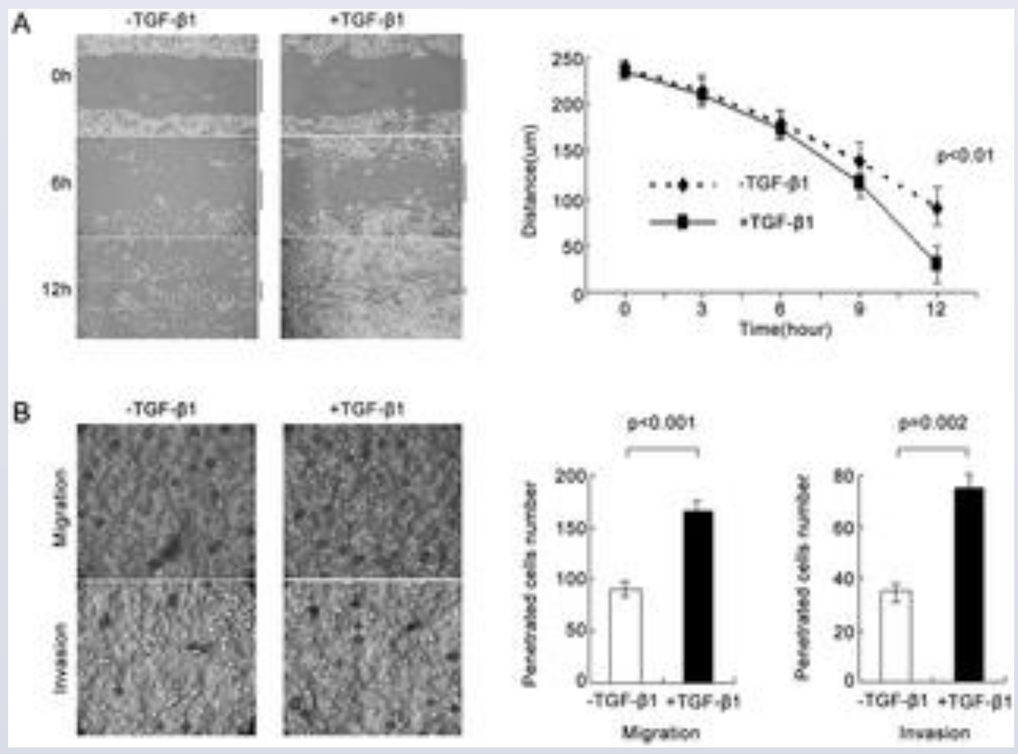



## Experiment Analysis

It is required to take images of the wound from different time intervals.

Analysis is done by the software called ImageJ

The distance between the cells at the edges are measured and the migration rates of the cells are calculated accordingly.




## Conclusion

- The main reason for this project was to analyze MCF7 cell migration in 3D format with constant medium flow.
- We know that cells are acting differently when they are in 3D form. Their morphology, metabolism and migration rates are different when we compare them with their 2D counter parts.
- It will be available to constant scratch area with every experiment and it will give more reliable results.

## References

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