Non-Invasive, Label-Free Analysis of Cell Migration Using CloneSelect™ Imager

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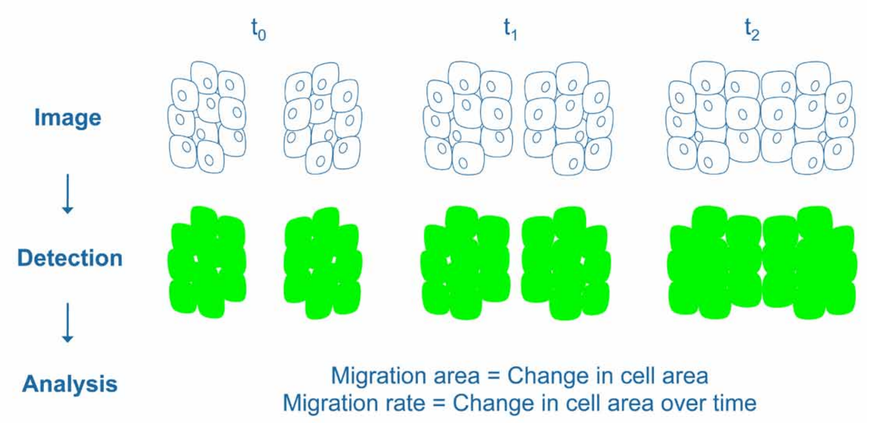
Introduction

Cell migration is a key physiological process, required for normal development, immune function and wound healing. Abnormal cell migration is also a feature of certain diseases, including cardiovascular disease and cancer. The cell migration assay is an easy, low-cost method to measure cell migration in vitro. Confluent cell monolayers are disrupted to create a wound, and cell migration into the wound area is monitored. The effects of drug candidates, cell matrix and cell–cell interactions on cell migration can be studied. CloneSelect™ Imager's Migration application provides a simple, but quantitative and accurate, measure of cell migration based on objective, sensitive label-free cell detection.

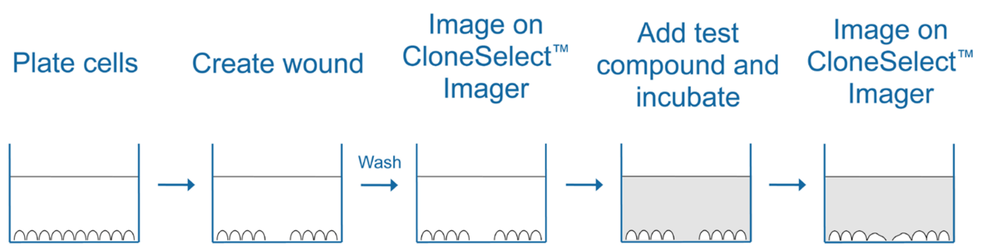
Overview (CloneSelect™ Imager)

- Label-free brightfield imaging of cells
- Objective, quantitative assessment of cell growth
- Image and analyse a 96-well plate in <2.5 mins
- Simple, user-friendly software interface
- Multiple applications
  - Monitor cell growth
  - Verification of monoclonality
  - Assess viability following cytotoxic challenge
- Analysis of Cell Migration

Cell Migration Assay Principle

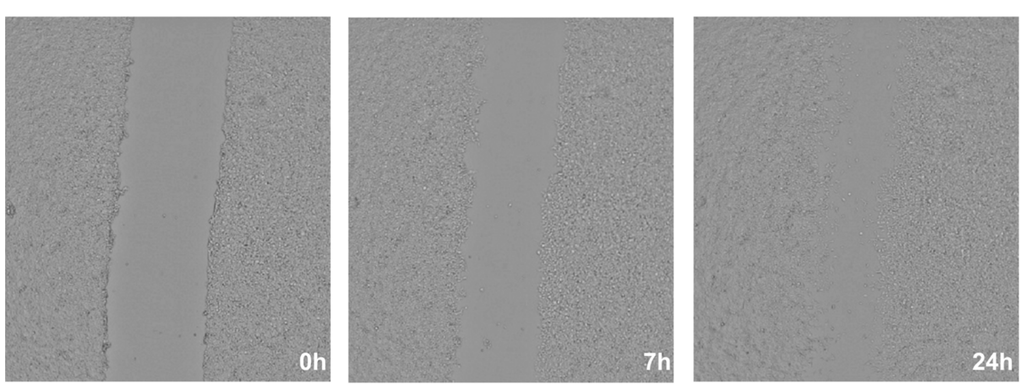


Method

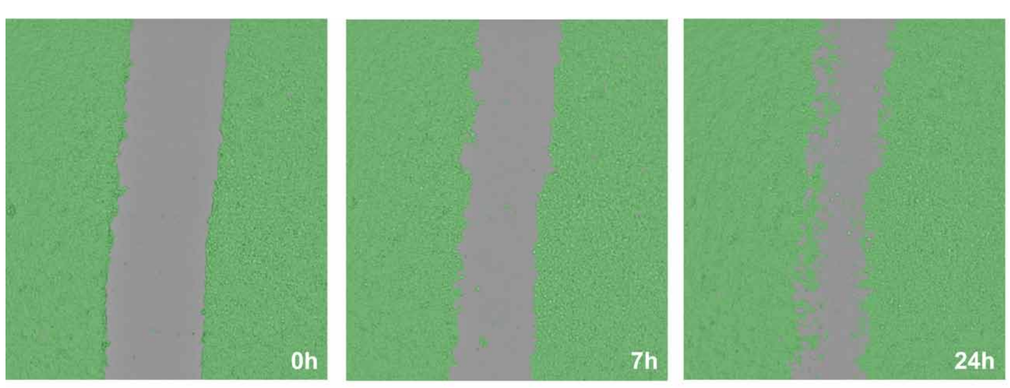


- Confluent monolayers of HEK293 cells grown in poly-D-lysine coated 96-well plates (Greiner)
- Assay performed with low serum media to inhibit proliferation
- Wound created in monolayer using sterile pipette tip
- Cells imaged on CloneSelect™ Imager (0h after scratch)
- Latrunculin A added, then cells imaged on CSI at required time points

1. Imaging of cells across multiple time points



2. Detection of cells using sensitive, objective algorithm

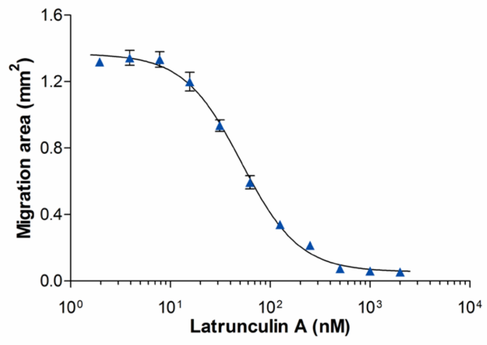


3. Analysis of cell migration area and rate

- Heatmap overviews
- Graphical representation of change in cell migration area over time for selectable wells

4. Data export for further analysis

- All data is fully exportable
- Allows further downstream analysis, e.g. IC50 determination



Summary

- Rapid, convenient method for monitoring cell migration
- High quality, sensitive, label-free detection of living cells using white light imaging

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