

The objective of the present study is to develop an assay for the determination of the viability of adherently growing cells using computer aided video microscopy. Cultured V79 cells will be used. The cells will be treated with ethanol to obtain cell populations with different viabilities. Various dyes and staining techniques, e.g. Fluorescein Diacetate-Propidium Iodide, will be tested and optimized for low background, high signal intensity and maximal differentiation between viable and non viable cells as seen by the video camera.

The influence of subsequent fixation of cells on staining quality will be tested. To count viable and non viable cells separately and automatically requirements on hardware and optical equipment such as exchangeable bandpass filters will be evaluated.

Image analysis software specialized on differentiation of cells, clusters and artefacts will be developed. Following the establishment of the method with V79 cells other cell lines and primary cells will be investigated with respect to cell type dependence of the method

It is intended to use the assay in future studies at INBIF-0 dealing with cell cultures. It will serve as a tool for viability determination without the need of suspending adherent cells prior to their investigation. The assay will be considered to be established when the results obtained are comparable to those given by the reference method of trypan blue dye exclusion.