

# CELL CYCLE ANALYSIS USING TIME-LAPSE MICROSCOPY

## Summary

Among many different techniques used in microscopy in order to visualize biological processes, time-laps microscopy gives unique opportunity to observe living cells on single cell level in time. One of the important processes that gain special interest is mitosis. Equal and undisturbed distribution of genetic material into two daughter cell that take place during mitosis is prerequisite of genome stability. In contrary, mitosis disturbances give rise to chromosomal instability, aneuploidy and cancer. Morphological changes that characterize mitotic cells enables to monitor cell division as well as tracking the fate of daughter cells. Moreover, transfection of

the cells with vectors coding fluorescent proteins which expression changes during cell cycle make possible to follow the cell cycle progression of individual cell. Time-lapse microscopy is used in cancer biology research in order to reveal the influence of chemotherapeutic drugs on the cell cycle of cancer cells. It is also used to find the new compounds or to set new chemotherapeutics drug regimes, that could lead to cell cycle alteration, lethal for the cancer cell.

Time-laps microscopy is a very powerful technique that could help to resolve different biological issues.