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Title (English)

Algorithm design for signal detection in fluorescence microscopy images of cells

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Abstract

Cell cultures as well as cells in tissue always display a certain degree of variability, and measurements based on cell averages will miss important information contained in a heterogeneous population. Fluorescence microscopy in combination with automated digital image analysis provides an efficient approach to single cell analysis. Image analysis software for these types of applications is however often complicated and not easy to use for persons lacking extensive knowledge in image analysis, e.g., laboratory personnel. This thesis presents an implementation of an automated method for image based measurements of mitochondiral DNA (mtDNA) mutations in individual cells detected with padlock probes and RCA. The implementation is done as an added functionality to a user friendly and MS Windows based image analysis software called VIS (Visiopharm A/S).

Keywords

Image analysis, padlock probes, RCA, mtDNA, Visiopharm, single cell analysis

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