Automatic Segmentation Of FISH Clustered Nuclei Using Morphological Watersheds.

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An accurate segmentation on Fluoresceinated-stained (FISH) nuclei is a key feature in the automation of interphase Cytogenetics. It becomes a critical issue when a great number of nuclei have to be analyzed in order to obtain statistical validated results, as it is the case with Minimal Residual Disease (MRD).

Mathematical Morphology based segmentation has been considered a powerful tool when other region growing or edge finding based segmentation algorithms fail. This is the case of the segmentation on varying luminance scenarios or the segmentation of clustered nuclei.

The morphological watershed algorithm has been tested with nuclei clusters on cell suspensions, and the result of the algorithm is presented on this paper. Using the watershed algorithm almost 100% of the clusters are properly segmented into its components.