

Automatic system for FISH cytogenetic analysis



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A new methodology for the automation of FISH spot counting in interphase nuclei will be presented and its performance evaluated.

The methodology makes use of digital image processing algorithms for the fully automated detection and scoring of fluorescently tagged chromosome probes on non-mitotic cells.

The system achieves automatic image focusing, nuclei detection and segmentation (including with cluster division) and probe segmentation. The classification steps are based on a discriminant function and a ROC analysis.

The performance of the system and its sensibility have been analysed through a control study where the results were known a priori. They showed the adequacy of the system to be used in clinical environments.