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**Segmentation of color images from serous cytology for automated cell classification.**

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**OBJECTIVE:** To design an automated system for the classification of cells based on analysis of serous cytology, with the aim of segmenting both cytoplasm and nucleus using color information from the images as the main characteristic of the cells.

**STUDY DESIGN:** The segmentation strategy uses color information coupled with mathematical morphology tools, such as watersheds. Cytoplasm and nuclei of all diagnostic cells are retained; erythrocytes and debris are eliminated. Special techniques are used for the separation of clustered cells.

**RESULTS:** A large set of cells was assessed by experts to score the segmentation success rate. All cells were segmented whatever their spatial configurations. The average success rate was 92.5% for nuclei and 91.1% for cytoplasm.

**CONCLUSION:** This color information-based segmentation of images of serous cells is accurate and provides a useful tool. This segmentation strategy will improve the automated classification of cells.

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