

Automated platform for GYN (compliant with The Bethesda System) and non-GYN cytology

Landing Cyto System

Automated abnormal cell detection



Automation • Intelligence • Standardization

FEATURE SUMMARY

The Landing Cyto System is an automated DNA image cytometer capable of quantitatively analyzing various types of cytology specimens, detecting DNA abnormalities and cancerous changes in cells. The system is user friendly, easy to maintain, and has a high throughput capacity on account of being fully automated.

Using proprietary automated image cytometry technology, the Landing Cyto System images, analyzes, and classifies cells into various categories based on quantitative measurements of DNA ploidy and over 200 nuclear features. The presence of abnormal amounts of DNA content (aneuploidy) reflects gross genomic aberrations usually indicating the presence of malignancy, correlating with tumor progression and poor prognoses.

For an added level of quality control, the Landing Cyto System facilitates a simultaneous review of cell morphology. The user can click on any cell to review it under the microscope or on the computer screen.

The Landing Cyto System is configurable and can be applied to a wide range of cytological specimens and slide preparation methods. Any cytology lab using a quantitative staining kit can use this system to analyze any type of cytological specimens such as fine needle aspiration, endoscope biopsy, body fluids (including urine and sputum), etc. The system is also compatible with various slide preparation methods such as liquid-based, smeared, and touch prep. The Landing Cyto System is optimized for use with the Landing Feulgen-Pap staining kit. The system facilitates qualitative review of the whole cell including cytoplasm based on Pap staining (secondary staining).

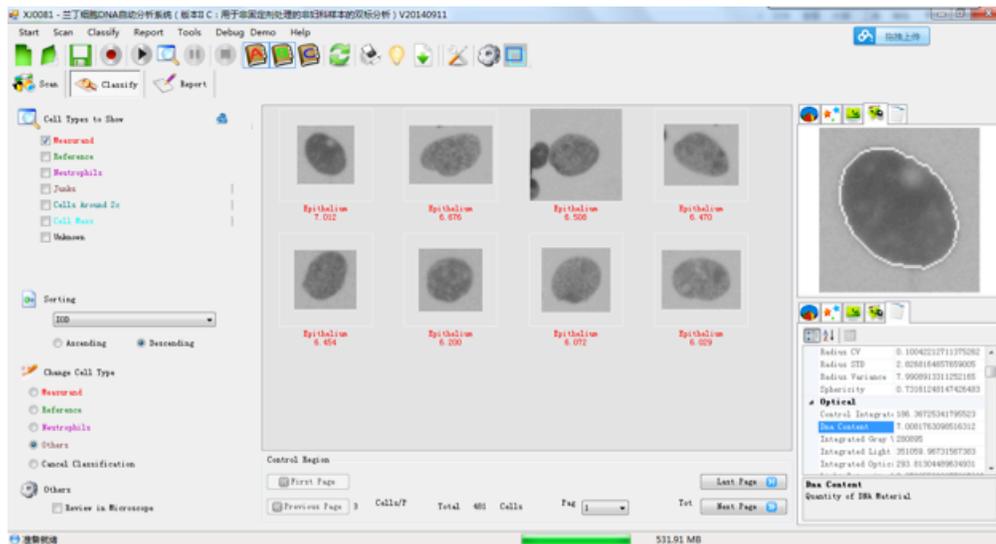
HARDWARE

The Landing Cyto System integrates high quality off-the-shelf components from well established and reliable manufacturers: Olympus BX43 microscope, The Imaging Source DMK 23G274 and DFK 23G274 cameras, and a powerful PC such as the HP ENVY all-in-one touch-screen computer. The system also includes a custom manufactured control box that serves as an interface between the other components.

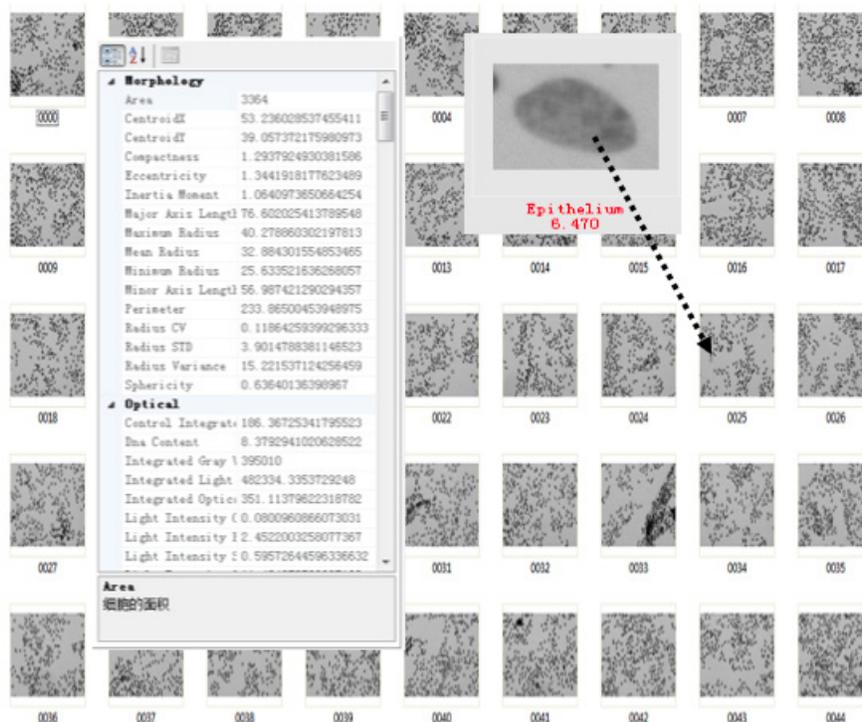


IMAGE FOCUSING, SEGMENTATION, AND ANALYSIS SOFTWARE

Advanced auto-focusing capabilities allow the Landing Cyto System to capture sharp, high-resolution images of each nucleus, which leads to more precise image segmentation and more accurate measurements.

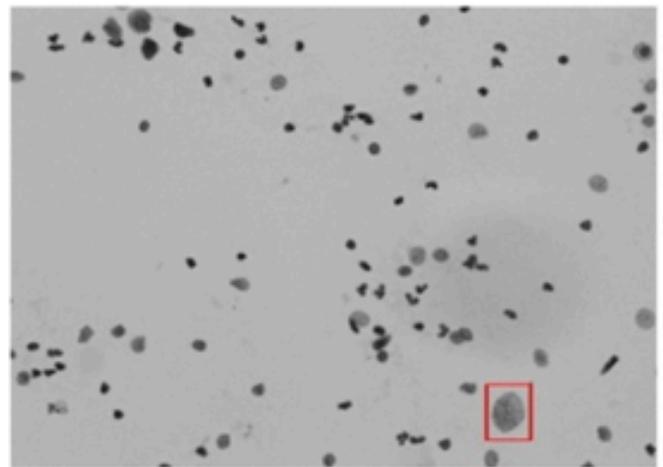
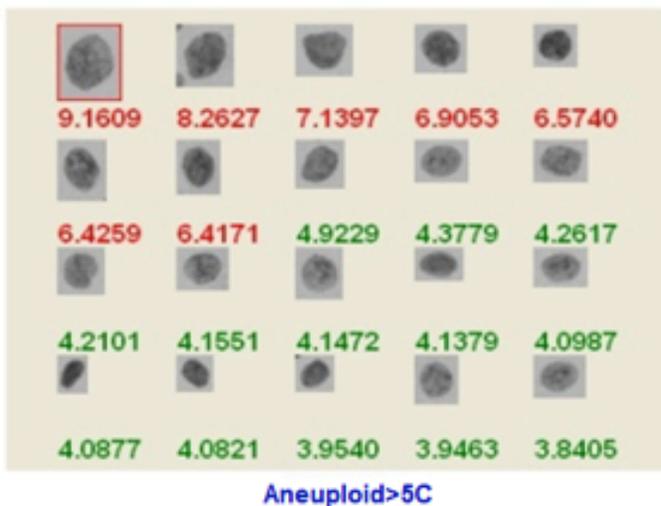
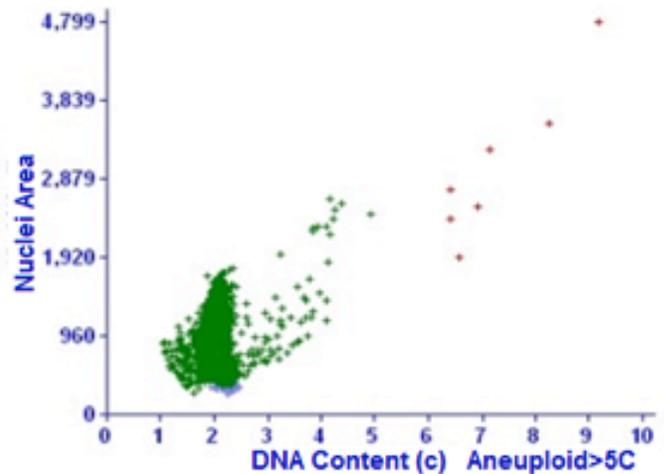
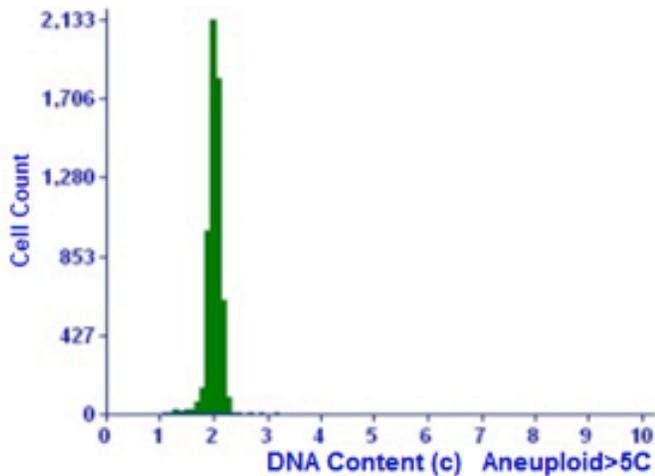


For every nucleus the system measures not only its DNA content but also many other properties. Together, these quantitative measurements describe changes in each cell's nucleus, thus providing a basis for its automated classification and analysis. The user may select any nucleus and view its properties.



INTEGRATED REPORT GENERATION

The automated report includes an image gallery of the nuclei with the highest amounts of DNA content, the entire field of view containing the first nucleus, a histogram, and a scatter plot.



HIGH-THROUGHPUT CAPACITY

Scan time varies and depends on slide preparation methods but can be configured by the user. For example, the user can specify the target number of nuclei to be scanned, the area of the slide to be scanned, etc. Typically, with cytopsin preparation, the system can scan and analyze about 8 slides per hour. Since it is automated, one user can run up to 10 systems simultaneously, making the Landing Cyto System uniquely suited for labor efficient, large-scale screening programs.

CALIBRATION AND QUALITY CONTROL

The Landing Cyto System is calibrated using a universal coordinate system to record positions of imaged cell nuclei, allowing for auto-repositioning capability. Any Landing Cyto System can be used to review nuclei scanned and analyzed by any other Landing Cyto System.

Every system is tested in-house to ensure it meets the highest standards of quality control. This involves both hardware tests and software tests such as measuring variations in integrated optical density (IOD) values of nuclei between different scans or between different fields of view in the same scan, deviations in recorded positions of specific nuclei between different scans, variations in final results, etc.

Finally, diagnostic results are reviewed by experienced cytopathologists.

QUALITY SYSTEM AND REGULATORY COMPLIANCE

The Landing Cyto System has been developed in accordance with ISO 13485 standards and has the CE mark. It is also approved by the CFDA for use in China.



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