

Summary of an evaluation of the first full-field digital morphology solution for PBS review

Multicenter study demonstrates **60% faster workflows** with accuracy comparable to manual microscopy



Overview

Complete blood count (CBC) with peripheral blood smear (PBS) is a common test.

It serves as a screening tool for clinical conditions and further laboratory workup. CBC analyzers perform well, but they offer limited ability to identify morphological variations and abnormalities. As a result, hematology laboratories still rely heavily on manual blood smear reviews, which are slow, labor-intensive, and subject to technician variability. With the staffing shortages and high workloads plaguing many clinical laboratories, this workflow is unsustainable.

Digital cell imaging systems improve and standardize cell and platelet recognition.

They use algorithms and other methods to automate PBS image analysis.

However, these systems do not achieve full digital microscopy. Because they analyze only limited regions of the PBS, many digitally analyzed samples must also be manually reviewed under a microscope, erasing the ostensible benefits of the system.

A multicenter study evaluated a novel solution. The study examined and validated the FDA-cleared Scopio Labs X100 Full-Field PBS, a novel digital imaging system that utilizes a full-field view approach for cell recognition and classification, in a decision support system mode.



Three clinical sites participated in the multicenter study.



Tel-Aviv Sourasky Medical Center



Brigham and Women's Hospital



The Hospital of the University of Pennsylvania



"A wide field of view is essential when we're trying to assess hematological malignancies, hence we return to the manual microscope. Current digital morphology of blood smears is not really digital, and the main reason is the narrow field of view."

Ben Zion Katz PhD.,
Director, The Hematology Laboratory Tel Aviv Sourasky Medical Center

Methodology

- The study analyzed 335 normal and 310 abnormal PBS samples from patients with diverse clinical conditions.
- Investigators compared the performance of Scopio's Full-Field PBS system to the gold-standard of manual microscopic analysis.



Test method:
Scopio's Full-Field PBS



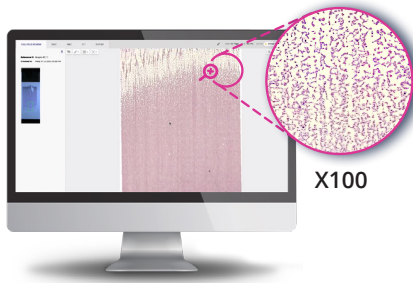
Reference method:
Manual PBS analysis

What did the study evaluate?

Investigators measured:

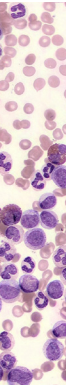
- WBC and platelet estimation accuracy
- Agreement on RBC morphology
- Reproducibility and repeatability
- Workflow efficiency

About the technology



The FDA-cleared **X100 Full-Field Peripheral Blood Smear™ Application** provides a **full-field view of all regions of interest** on a slide, including the feathered edge and the monolayer, at **100X magnification**.

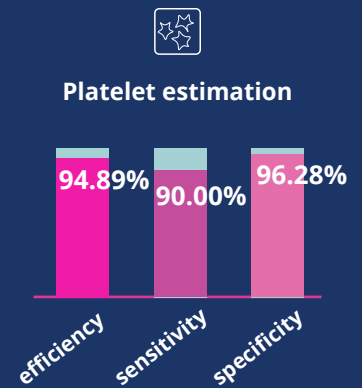
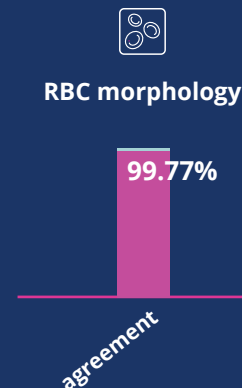
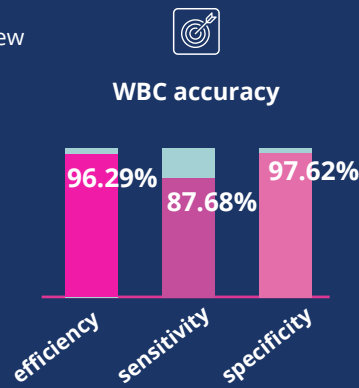
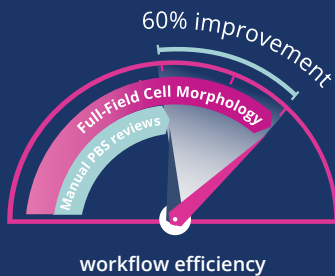
- Combines high resolution with a wide field of view
- Based on a novel computational imaging approach
- AI tools locate and pre-classify platelets and leukocytes
- FDA-cleared



Results

Workflow efficiency:

60% improvement due to faster review time per case.



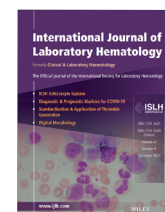
*" Under clinical study settings, where each examiner reported on a 200 WBC differential, complete RBC morphology evaluation and platelet estimation based on 10 FOVs, the median time for manual review was **20:00 minutes** per case, and the median time for **Scopio's Full Field PBS review** was **7:46 minutes**, a **60% improvement of workflow efficiency**."*

Ben Zion Katz PhD.,
Director, The Hematology Laboratory Tel Aviv Sourasky Medical Center

Conclusions

Scopio's Full-Field PBS Application showed a **high degree of correlation** with manual microscopy across all tested parameters, with **more than twice the throughput**.

This solution provides a long-awaited path to digital microscopy that **eliminates the need for manual review**, improves consistency, and increases operational efficiency in the hematology lab.



Read the full publication