Computer-aided Microscopy for Malaria Diagnosis
Automated Scanning System

- Development of computer-assisted microscopy system for malaria diagnosis in thin and thick smears
  - Automated scanning
  - Automated plasmodia detection
- Automated scanning process resulting in digitized views of the slide provides benefits
  - Long-term storage is possible
  - Useful for obtaining 2nd opinion
  - Automated analysis is possible

SCube scanning platform

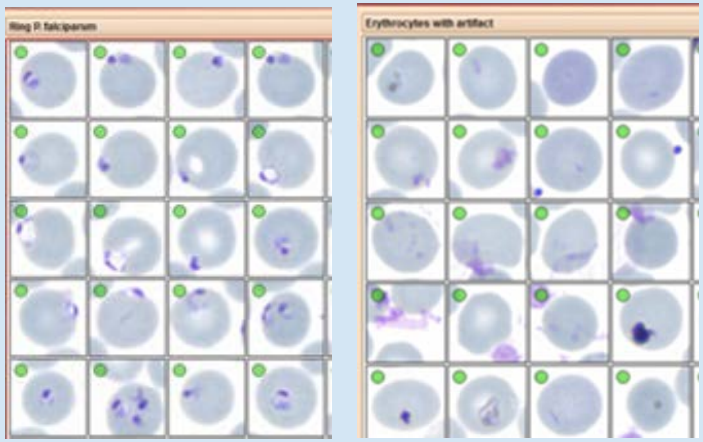
thick blood smear

thin blood smear

Computer-aided Microscopy for Malaria Diagnosis
Detection of Plasmodia

- Plasmodia detection is performed in two steps:
  - Selection of possible plasmodia candidates
  - Classification to reduce false-positive candidates (= artefacts)
- Classification results obtained on a test database containing 2985 plasmodia and 829 artefacts
  - Accuracy: 93%
  - Sensitivity: 94%
  - Specifity: 90%

detected candidates in thick smear with high probability to be a plasmodium according to the classification step



thin blood smear: left: erythrocytes with PF ring stage; right: erythrocytes with artifacts

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