

A dark-field microscopy image showing various microorganisms, including a prominent yellowish, branching structure in the lower right and several smaller green and yellow spots scattered throughout.

**Microbial
Microscopy**

Customization
Package
**Mycobacteria
Detection**

Imaging of Auramine-Stained Samples

Microscopy is often used as a rapid and cost-effective method to triage patients who might have TB before conducting confirmatory tests. In patients undergoing treatment, it plays an important role in assessing therapy success by quantifying bacterial presence over time.

With the support of our application specialists, users can set up a workflow that enables the automated acquisition of Auramine-stained slides. A specific number of camera fields can be defined, e.g. 300 Fields of View (FOVs) as recommended by the WHO.

Users can implement a customized Deep Neural Network (DNN) to pre-qualify the found objects. You can also choose to set up a suggested grading of the detected Auramine-stained objects. The trained experts can easily confirm, modify, or reject these computer-generated proposals. For those accustomed to performing additional Ziehl-Neelsen staining, the software stores the XY coordinates of each identified object so that users can effortlessly re-locate them with a single mouse click.



AUTOMATED IMAGE ACQUISITION

Quickly and effortlessly digitize your Auramine-stained samples with advanced imaging capabilities. We recommend using a red fluorescent counterstain, e.g. Thiazin Red. The counterstain enhances autofocusing accuracy and speed. Reports can be generated with the Neon case and image management, or the results can be seamlessly transferred to the LIS.



DNN-SUPPORTED PRE-QUALIFICATION

Leverage user-trained Deep Neural Networks (DNN) to harness artificial intelligence for the pre-qualification of Auramine-stained objects. Utilize the software's capabilities to receive grading suggestions during review, streamlining the process of image and object confirmation.



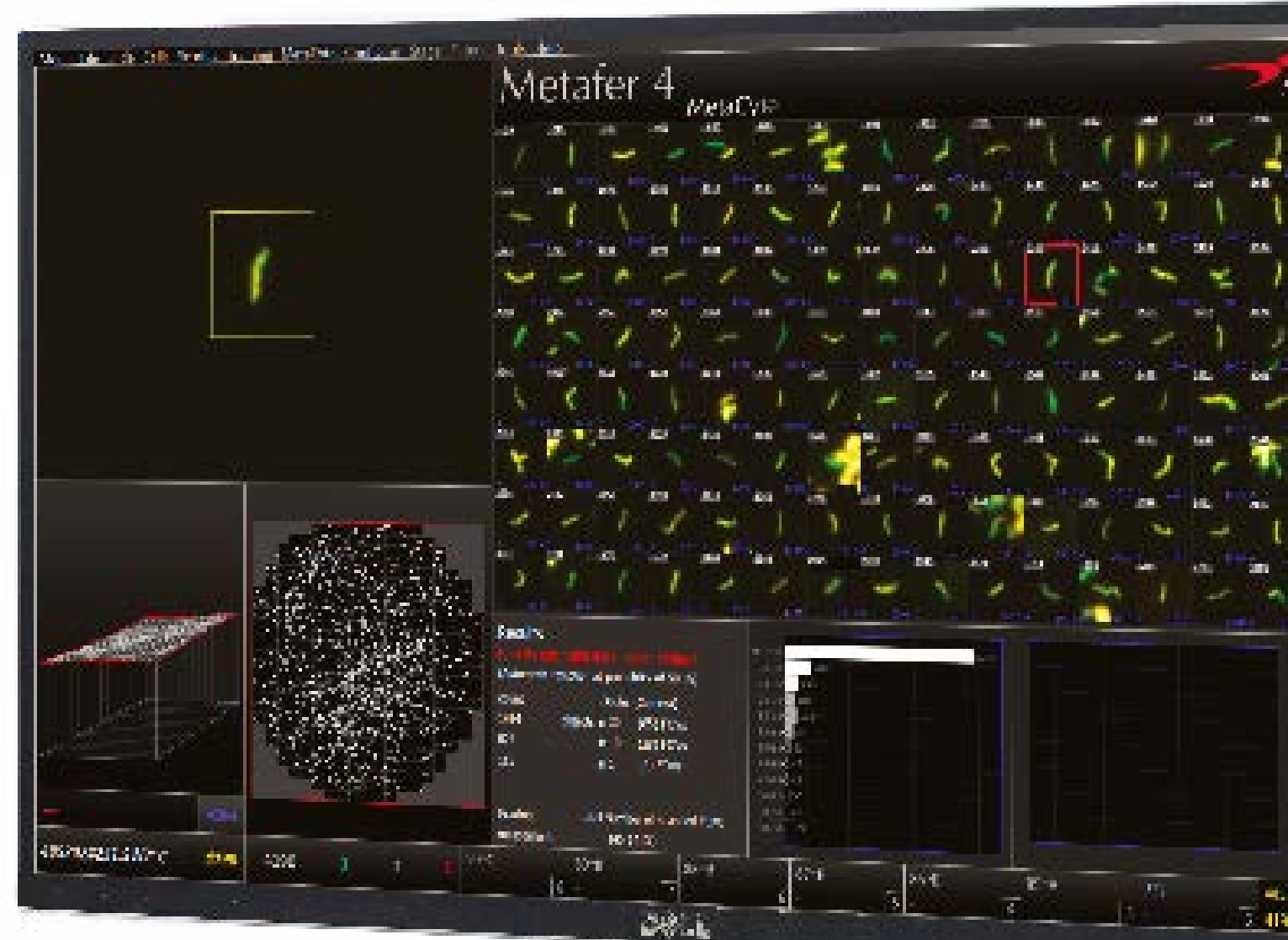
REAL-TIME GALLERY DISPLAY

The final assessment by a microbiology expert is the most crucial step in image evaluation. The software streamlines this process by compiling all digitized images into a well-organized gallery. Images can be enhanced with processing tools for improved visibility while maintaining full access to the unprocessed originals.



EASY ONE-CLICK RELOCATION

In some cases, it may be useful to examine an object from the image directly under the microscope. For example, you could check whether an Auramine-stained object is marked after Ziehl-Neelsen staining to confirm its origin. The software records the precise coordinates of each object on the slide, allowing for easy relocation under the microscope with a simple mouse click.





WORLDWIDE

OFFICES

AMERICAS

USA, Medford
info@metasystems.org

Argentina, Buenos Aires
info@metasystems-latam.com

EUROPE

Germany, Altlussheim
info@metasystems-international.com

Italy, Milan
info@metasystems-italy.com

ASIA

China, Hong Kong
info@metasystems-asia.com

China, Taizhou
info@metasystems-china.com

India, Bangalore
info@metasystems-india.com

MetaSystems offers **Customization Packages** for application workflows that have been successfully implemented for customer labs using standard Metafer platform functionality. It is expected that they can be implemented for other customer labs using similar workflows and slide preparation procedures. If a Customization Package is purchased, MetaSystems product specialists will - based on their experience from other similar application cases - support the customer lab in adapting the Metafer software configuration to their needs. The performance of the solution will depend on the quality of the customer slides and the expertise of the users, MetaSystems cannot specify or guarantee any performance parameters. The validation of the solution for clinical use is the sole responsibility of the customer lab.

MetaSystems software provides, among other functions, features to assist users with image processing. These include, but are not limited to, the use of machine and deep learning algorithms for pattern recognition. The output generated in this process should be regarded as preliminary suggestions and, in any case, mandatorily requires review and assessment by trained experts.

CONTACT US

OR YOUR LOCAL
MetaSystems
REPRESENTATIVE



metasystems-international.com

MetaSystems Hard & Software GmbH
Robert-Bosch-Str. 6
68804 Altlussheim | Germany

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