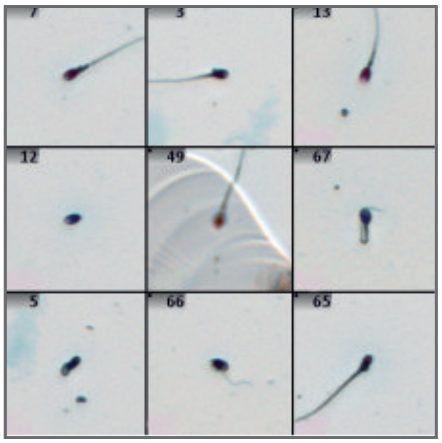
DNN Based Sperm Finding

Artificial Intelligence for Automated Forensic Sperm Detection

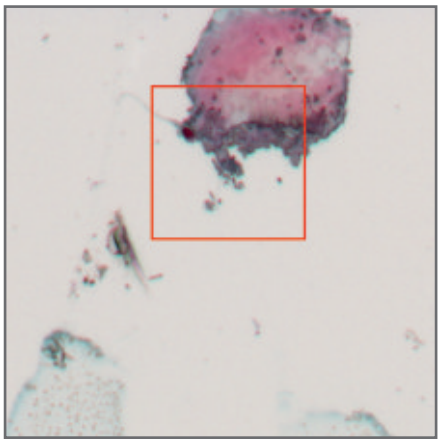
FORENSICS

MetaSystems

INTELLIGENT FORENSIC SPERM DETECTION



Gallery of detected sperms in Metafer



Metafer detecting difficult sperm

Sperm cell detection is a widely used forensic analysis tool in the investigation of sexual assault crimes. Manual detection of sperm cells in a sample can be tedious and complex, leading to potential errors. Due to the nature of forensics, sample degradation and variability is unavoidable. Automated sperm detection is, therefore, one of the most efficient ways to rapidly identify the presence of sperm.

MetaSystems has developed a new **Deep Neural Network** (DNN) algorithm, trained with thousands of pre-classified data, which brings the advantages of Artificial Intelligence into the automated sperm detection domain. Using the DNN algorithm, MetaSystems' Metafer can detect even the most elusive sperm.

Metafer Sperm Finder supports:

- **Automated detection** of even the most degraded and variable sperm in transmitted light from '*Christmas Tree*'-stained (Nuclear Fast Red/Picro-indigocarmine) specimens
- Full slide scan in **less than 15 minutes** (with our Cool Cube 4c)
- **Up to 800** slides automated scan, with MetaSystems **SlideFeeder x80**
- Easy review of results
- Simple and efficient transfer of object coordinates to laser micro-dissection systems
- Upgrade path to fluorescence
- Fully **GLP - compliant documentation**

Note
For Research Use Only (RUO).
Metafer for sperm finding is not intended for diagnostic use.

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MAGAZINES

Metafer's slide frame magazines hold 16 frames with 5 slides each (80 slides in total). A fully equipped SlideFeeder x80 hosts 10 magazines plus one bar code reader.

Each magazine is portable and can easily be taken to the workbench for loading.

FEEDER MODULE

The rotating module of the SlideFeeder x80 delivers the slide frames to the motorized stage of Metafer.

The device runs unattended and is prepared for 24/7 operation - including intelligent priority sample handling.

AUTOOILER

If the current workflow requires the use of an immersion oil objective, the automated oil dispensing device is engaged.

Detailed sample dependent macros control optimal oil dispersal for each sample.

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CAMERAS

MetaSystems CoolCube cameras are designed with excellent imaging and automation in mind.

These provide seamless automated integration with Metafer enabling optimal performance.

MICROSCOPE

High precision research grade fully motorized microscope equipped with a stepping motor stage enables found objects to be precisely recorded and relocated.

Objective: 20x

Light: Transmitted Light

SOFTWARE

The PC based Metafer software controls the scanning hardware and provides a convenient user interface prepared for all-day, routine use. Thanks to the exceptional classifier concept each Metafer provides the optimal balance between flexibility and standardization.

MetaSystems

Innovative Solutions for
Automated Imaging

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