



1 Natural color view of the imaging field

2 View of a mock surgery with three different fluorochromes

## MULTISPECTRAL (rMSI) SURGICAL MICROSCOPE

### Vision

Seminal developments in molecular imaging have resulted in fluorescence contrast agents that can highlight tissue anatomy, function, and pathology to aid doctors in interventional imaging. Yet, current imaging systems are limited: they can visualize only one fluorochrome and only under absence of ambient light that facilitates eye vision.

### Solution

In PAMB we have adapted real-time multispectral imaging (rMSI) technology to a surgical microscope in order to improve its functionality and performance. The rMSI microscope works with a combined temporal and spectral multiplexing of illumination with image acquisition. Using spectral unmixing it decomposes the image into multiple components based on the reflectance and fluorescence optical properties of tissue.

The rMSI microscope can distinguish between 3 different fluorescent emitters, i.e. any fluorescent contrast agents or intrinsic tissue autofluorescence components. Additionally, it acquires fluorescence and color images seamlessly, thus providing natural visualization of both tissue and fluorochrome distribution. The design is modular, has no moving parts and the illumination and the camera system are directly adaptable to existing microscopes or other optical imaging systems.

### Key characteristics

- Spectral and temporal multiplexing
- Modular add-on illumination and camera technology
- No moving parts

### Advantages

- Increased specificity and sensitivity
- Natural visualization
- Removal of autofluorescence

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