



## Microtubule Labeled Slides Used for Calibration of Various Fluorescence Microscopes

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**The Wisconsin Alumni Research Foundation is seeking commercial partners interested in developing a microtubule slide. This slide can be used to calibrate any optical microscope, including light, confocal and super-resolution instruments.**

### Overview

Fluorescent microscopes, including wide-field, confocal and super-resolution, are widely used instruments in a variety of research fields but require routine calibration and maintenance. Calibration requires optical alignment, optical setting, accurate illumination and detection, resolution and performance verification tests. Calibration typically involves fluorescent beads of known size and purchased biological control slides containing structures such as nuclear membrane, microtubules, etc. Biological control slides in particular are useful for both calibration and demonstration. All microscope companies, imaging cores in institutes and labs/companies using microscopes, regularly buy biological control slides.

### The Invention

A UW-Madison researcher has developed a microtubule slide that can be used for any calibration purpose and all types of calibrations. A microtubule provides a good biological control for microscopy calibration since it has 25 nm thickness, obvious structures for all cells and fiber shape. In addition, a microtubule is an excellent sample to demonstrate microscope performance. The UW-Madison microtubule slide has stability of a year or more. The protocol allows for staining by a single color or multiple colors with any dyes (Alexa 488, 568, 598, 647, Rhodamine Red, etc.).

### Applications

- Fluorescent microscope manufacturers (multiples control staining slides are routinely provided with each microscope for calibration and demo)
- Laboratories who use fluorescent microscopes and need to perform calibration on their instruments

### Key Benefits

- Long stability of over a year or more
- Can include single or multicolor samples for calibrating regular light microscopy, confocal microscopy and super-resolution microscopy
- Bright with optimal staining compared to existing control slides
- Longer lifetime with much less photo bleaching in storage and during calibration

### Stage of Development

The researchers tested 8-month-old samples (stored in a refrigerator) in various microscopes and demonstrated the ability to perform calibration for all microscopes including confocal and super-resolution microscopy. In addition, an original microtubule slide was tested to demonstrate a Nikon STEDYCON (a super-resolution microscope). The sample performance was superior to all commercially

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available control slides, as well as other slides prepared in house. After the demonstration, a Nikon specialist expressed interest in the researcher's slide.

## Additional Information

### For More Information About the Inventors

- [Oji Suzuki](#)

### Tech Fields

- [Analytical Instrumentation, Methods & Materials : Microscopy](#)

For current licensing status, please contact Jennifer Gottwald at [jennifer@warf.org](mailto:jennifer@warf.org) or 608-960-9854

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