MIRROR SLIDES FOR ENHANCED FLUORESCENCE IMAGING OF CELLS AND TISSUES

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ABSTRACT: Fluorescence microscopy has become the method of choice in the majority of life-science applications. We will show how the use of mirror slides can significantly enhance the fluorescence signal using standard air microscope objectives. This technique offers sufficient gain to achieve high-sensitivity imaging with wide field of observation and large depth of focus, two major breakthroughs for routine analysis and high-throughput screening applications on cells and tissue samples. Mirror slides enhance the fluorescence signal over the entire visible spectrum and over micrometer thicknesses allowing multicolor labeling and thick sample imaging like cells and tissues.

We will present two applications on cell cultures and tissues that exemplify the need for such active substrates in thick sample imaging. The first one concerns the study of epithelium degeneration, in the context of research on cancer (see Figure 1). In the second one, we applied mirror slides to tissue imaging for medical diagnosis, in the follow-up of the survival and stability of sex-mismatched human grafts.

Figure 1: Image of dog kidney cells on a standard glass slide (left) and on a mirror slide (right).

REFERENCES: