



Trade-Offs to Win-Win: Smart-Fluorescence Imaging for Improved Image Quality with Reduced Photodamage.

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Trade-offs to win-win

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Summary

Bio-imaging using fluorescence microscopy is widely used for the study and visualization of biological processes with a high degree of specificity. However, the illumination used for fluorescence imaging can be invasive enough to affect the imaging process by causing photodamage. At the same time, the quality of the recorded image largely depends on the illumination levels used for imaging resulting in a trade-off between image quality and photodamage. In this study smart illumination strategies are explored to reduce photodamage and improve imaging sensitivity. The study concludes that by adjusting illumination in accordance to the spatial-profile of the biological specimen during real-time imaging, it is possible to improve image quality and reduce photodamage at the same time leading to a win-win scenario.