

FLUORESCENT CARBON DOTS FOR SUPER-RESOLUTION IMAGING

Wei Li^{1,2}, Oliver Vanderpoorten¹, Bingfu lei², Yingliang Liu², Clemens F. Kaminski^{1*}

1. Department of Chemical Engineering and Biotechnology, University of Cambridge, Cambridge, CB3 0AS, UK

2. Guangdong Provincial Engineering Technology Research Center for Optical Agriculture, College of Materials and Energy, South China Agricultural University, Guangzhou 510642, China
E-mail: cfk23@cam.ac.uk

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Fluorescent proteins and organic dyes are widely used as imaging probes in microscopy, but they often have limited brightness, can be optically switched in only a limited number of ways, and undergo rapid photobleaching [1,2]. Advances in fluorescent nanomaterials have provided considerable opportunities to address the shortcomings of fluorescent dyes and proteins in microscopy. Fluorescent carbon dots (CDs) feature high photostability and excellent compatibility for use in biological tissues and have therefore attracted substantial attention as subcellular targeting probes [3,4]. Although a number of applications have been reported for use of CDs, their use for super-resolution imaging is still very limited. In this work, we present our progress on the development of near-infrared emissive CDs for imaging in both fixed and living cells and their potential to be used in conjunction with stimulated emission depletion (STED) microscopy with improved spatial resolution. Through their conjugation with selective antibodies, the selective imaging of cellular structures is feasible, demonstrating the potential of such nanomaterials for super-resolution applications.

References

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