Laser-free super-resolution microscopy

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Abstract:

We report that high-density single-molecule super-resolution microscopy can be achieved with a conventional epifluorescence microscope setup and a Mercury arc lamp. The configuration termed as laser-free super-resolution microscopy (LFSM), is an extension of single-molecule localisation microscopy (SMLM) techniques and allows single molecules to be switched on and off (a phenomenon termed as "blinking"), detected and localised. The use of a short burst of deep blue excitation (350-380 nm) can be further used to reactivate the blinking, once the blinking process has slowed or stopped. A resolution of 90 nm is achieved on test specimens (mouse and amphibian meiotic chromosomes). Finally, we demonstrate that STED and LFSM can be performed on the same biological sample using a simple commercial mounting medium. It is hoped that this type of correlative imaging will provide a basis for a further enhanced resolution.

References:

Prakash, Kirti. "Laser-free super-resolution microscopy." bioRxiv (121061).
