

## Spatially Resolved Optical Experiments to Monitor the Singlet Oxygen Initiated Oxidation of Lipid Droplets in Oil-in-Water Emulsions

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We have established that singlet molecular oxygen,  $O_2(a^1\Delta_g)$ , can be selectively produced with high spatial localization in micro- and nano-heterogeneous samples using a variety of laser-based methods. For lipid droplets in oil-in-water emulsions, this means that we can produce  $O_2(a^1\Delta_g)$  inside a droplet or in the aqueous medium right next to the oil-water interface. We then use fluorescent probes to monitor the resultant oxidation reactions in spatially resolved imaging experiments. By using a hydrophobic probe, we monitor oxidation inside the droplet. With an amphiphilic probe, we monitor oxidation at the oil-water interface. With this approach, we can monitor the spatial evolution of an oxidation reaction in/on a given droplet, and the evolution from one droplet to another droplet.

C. Banerjee, T. Breitenbach, and P. R. Ogilby, *ChemPhotoChem*, **2018**, *2*, 586-595. Spatially Resolved Experiments to Monitor Singlet Oxygen Initiated Oxidation of Lipid Droplets in Emulsions.

C. Banerjee, M. Westberg, T. Breitenbach, M. Bregnhøj, and P. R. Ogilby, *Anal. Chem.*, **2017**, *89*, 6239-6247. Monitoring Interfacial Lipid Oxidation in Oil-in-Water Emulsions Using Spatially Resolved Optical Techniques.