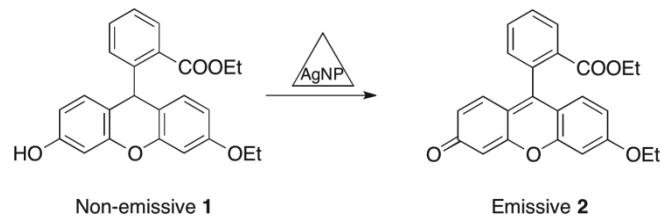


Generation of Emissive Species *via* Nanoparticle Mediated Catalysis

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Recent studies have exploited fluorescein derivatives as probes for the detection of hypochlorous acid *via* HOCl-promoted oxidation. The oxidation of the fluorescein moiety causes a switch in the photophysical properties of the molecules, essentially “turning on” emission from an otherwise non-emitting starting material (**1**). In this work, the oxidation of similar fluorescein molecules will be examined using LED excitation of the surface plasmon band of Ag nanoplates and Au nanoparticles, known as plasmon mediated catalysis (PMC). PMC results in the nanoparticle surface acting as an oscillating dipole, which allows for chemical transformations of nearby organic molecules. The conversion to the desired product (**2**) using Ag nanoplates can be monitored using PTI fluorescence spectroscopy. This reaction was found to have a strong dependence on the concentration of the nanoparticles, the power of the light source, and the type of nanoparticle used. The mechanism of the reaction is proposed to occur through Ag nanoplate C-H bond activation based on nanoparticle excitation.



Scheme 1.