

# Subject proposition of M1 internship at the Chemistry Laboratory of *IMAGES ESPACE-DEV*

2019-2020

Duration: 2 months

**Title:** Measurement of reactive oxygen species (ROS) in solution using fluorescence technique.

**Key words:** Reactive oxygen species (ROS), Fluorescence lifetime, *Invivo* measurements of fluorescence lifetime.

**Objectives:**

- To study new fluorescent probes, based on the quenching of fluorescence (intensity and lifetime) of Pyrene-based probes.
- To measure the fluorescence lifetime and intensity of probes in the presence of different types of ROS in solution.

**Proposition:**

The presence of reactive oxygen species (ROS) is natural inside our cells, but a disruption of their concentration is associated with a significant number of physiological and pathological processes like aging, cancers, and Alzheimer. Consequently, it is fundamental to effectively measure ROS inside cells. To do so, we designed and synthesized probes using long fluorescence lifetime molecules as Pyrene. We utilized our technique to study the implication of free radicals in response to environmental stresses in unicellular green algae and different cell lines.

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