

Les mardis de  
**L'IAB**

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INTRACEREBRAL PHOTOBIOMODULATION FOR THE  
TREATMENT OF PARKINSON'S DISEASE :  
ONGOING CLINICAL TRIAL AT CLINATEC AND TRENDS

**17. DECEMBER 2024 – 11 AM – LECTURE HALL**

This seminar will focus on photobiomodulation in the context of Parkinson's Disease. In Parkinson's Disease, dopaminergic neurons in a midbrain region called the *substantia nigra* degenerate, leading to a variety of symptoms such as tremor, akinesia, rigidity, and many others. Years of *in vitro* and preclinical studies on animal models of the disease (rodents and non-human primates) have confirmed the potential of photobiomodulation to slow down disease progression by acting directly on that region of the brain which neurodegenerates. This research led to a clinical trial involving seven patients who, between March 2021 and October 2024, received implants consisting of a battery-powered laser source coupled with an optical fiber that was implanted in the brain. This medical device enables the direct delivery of deep-red light to the *substantia nigra* for efficient optical stimulation.

The presentation will briefly summarize the preclinical work, before going into the technical, surgical, and clinical aspects of the trial, emphasizing the complexity of conducting highly multidisciplinary translational research in a clinical framework. Scientific challenges associated with photobiomodulation, as well as current technical developments underway in our lab, will also be discussed, along with the medium-term goals we are aiming to achieve.

**Invited by : Anne-Laure Bulin**

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