

**PLEC DE PRESCRIPCIONS TÈCNIQUES**

**PROCEDIMENT Negociat SP Exclusivitat**  
**Contracte núm. CONTR-106/2023**

Supply of laser equipment for ERC-COG-DREAMNET project, GA number 101088598 as a fundamental part of ERC-CoG-DREAMNET project to Adam Ranson. The laser is a 920nm pulsed femtosecond laser suitable for use with a 2-photon microscope for fluorescent imaging.

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### **1. [Clàusula primera]**

Description of equipment:

The ERC Consolidator project DREAMNET aims to measure neural activity in the rodent brain during sleep at cellular resolution across spatially distributed (>2mm distal) cortical areas of the brain. The project has the aim of understanding how and why neural activity is produced during sleep and dreaming and the roles it is playing in creativity and memory.

This project requires a microscope which uses temporal multiplexing to independently functionally image spatially distributed brain regions. This is achieved by temporally offsetting the stimulation pulses which are being directed to the two independent scan engines of the microscope, thus resulting in rapidly alternating emission from each of the two excitation sites. This temporally alternating signal from the two excitation sites can be unmixed in the acquisition system. This custom built System requires a femtosecond stimulation laser with the characteristics described below.

Parts and components of the equipment:

- 920nm pulsed femtosecond laser suitable for use with a 2-photon microscope for fluorescent imaging.

Minimum technical characteristics:

- 1) Power >1W
- 2) Pulse duration < 100fs
- 3) Built-in AOM
- 4) Built-in GDD correction
- 5) Capacity to be modified to synchronise pulses with another similar System
- 6) 80MHz repetition rate
- 7) > 98% power in main pulse

Equipment installation:

The equipment is self installed.

Associated documentation:

- Instruction manual
- Report indicating equipment complies with the technical specifications
- Documentation relating to the guarantees of all equipment components
- Telephone numbers and contact addresses of the Technical Service