

Diagnose Brain Tumors with two-photon fluorescence

The main therapy to treat brain tumor consists of the total resection of all tumor volume. The ability to diagnose brain tumors intraoperatively and to delineate their margins, as accurately as possible, is of primordial importance during surgery. However, the exact tumor boundaries are difficult to be delineated by the surgeon due to the similar visual appearances with Healthy tissues, leading in many cases to poor surgical outcomes and a high risk of recurrences. To solve this issue, our team develop a two photon fluorescence endomicroscopic probe to analyze the endogenous fluorescence of brain tissues in order to provide reliable information intraoperatively on the tissues nature at cellular level. Many challenges need to be addressed during the development of such instrument. Otherwise, we are building a big tissue database with the different optical signatures of all brain tumors types in order to supply our endomicroscope memory.

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