

Thien et al. developed a device (Fluoropen) for detecting fluorescence in brain tumor tissues obtained by [fluorescein sodium guided resection](#) with stereotactic needle biopsy.

METHODS: The Fluoropen is a device consisting of a light source fitted with color filters to create the required emission and visualization wavelengths. The proof-of-concept study consisted of four consecutive patients who underwent fluorescein fluorescence-guided frameless stereotactic biopsy of brain tumor. Each sample was examined for the presence of fluorescence using the Fluoropen and compared with a microscope with fluorescence visualization capability.

RESULTS: A total of six samples were obtained from four stereotactic needle biopsy procedures. Four out of five samples (80%) taken from the contrast-enhancing part of the tumors were shown to be fluorescent under the microscope fitted with fluorescence module and the Fluoropen. One non-contrast enhancing lesion was non-fluorescent using both the microscope fitted with fluorescence module and the Fluoropen. The Fluoropen was shown to have 100% concordance with the microscope fitted with fluorescence module.

CONCLUSIONS: The Fluoropen is a low-cost and simple standalone device for the detection of fluorescein fluorescence that can expedite stereotactic needle biopsy by providing instant confirmation of the diagnostic sample and therefore avoid the need for an intraoperative frozen section. In patients with non-contrast enhancing tumors and those who were pre-treated with dexamethasone prior to surgery, fluorescein fluorescence-guided stereotactic needle biopsy will need to be used with caution ¹⁾.

¹⁾

Thien A, Rao JP, Ng WH, King NK. The Fluoropen: a simple low-cost device to detect intraoperative fluorescein fluorescence in stereotactic needle biopsy of brain tumors. *Acta Neurochir (Wien)*. 2017 Feb;159(2):371-375. doi: 10.1007/s00701-016-3041-8. Epub 2016 Dec 10. PubMed PMID: 27943078.

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