

IIT FLAGSHIP “TECHNOLOGIES FOR HEALTHY LIVING”

PhD position at the Italian Institute of Technology, Genova, Italy

On the project: “Phototherapy for brain tumor by genetic targeting and bio-chemical sensing“

The Center for Synaptic Neuroscience and Technology (<https://www.iit.it/it/nsyn-unige/>) and the Center for Convergent Technologies of the Italian Institute of Technology (IIT; <https://www.iit.it/>) in Genova are opening a PhD position in the field of smart photosensitizers and their application in the therapy of glioblastoma, one of the most aggressive brain tumors. The position will be under the supervision of Prof. Fabio Benfenati and Dr. Elisabetta Colombo. The candidate will collaborate with the groups of Dr. Teresa Pellegrino, Dr. Ferruccio Pisanello and Dr. Gianni Ciofani within an IIT Institutional flagship project for the development of innovative technologies for the healthy living.

We are looking for a talented and enthusiastic fellow who will join our interdisciplinary team to realize and study innovative strategies based on the synergistic effect of nanotechnological tools, such as nanoparticles or organic compounds, with light in the visible or IR range to target brain tumors.

In recent years, we have pioneered active light-sensitive interfaces able on the one side to recover the physiological condition of single neurons affected by neuronal dystrophy (*Nature Communications* 2024) and on the other to address on-demand optoporation of cell membranes and eventual cell death (*ACS Nano* 2024). The combination of these technologies has the disruptive potential to target and kill glioblastoma cells with spatial resolution and specificity, paramount features to avoid the immune escape of the tumor.

The experimental work will involve *in vitro* and *in vivo* studies in experimental models of glioblastoma, including *in vivo* transduction with viral vectors, electrophysiology, functional 2-photon imaging, and light-driven behaviors. We expect to work with a fellow with a Biology, Biotechnology, or Biomedical engineering background. The candidate is expected to have the motivation and curiosity to explore the insight of our idea from the biophysical, molecular, and clinical points of view. One of the following practical experiences will be considered a plus: molecular biology, nanomaterials, or *in vivo* animal handling and related procedures. An IELTS English certification is required.

Please submit your application, including a detailed curriculum and one-page research statement in PDF format, to: fabio.benfenati@iit.it and elisabetta.colombo@iit.it quoting “*PhD position Phototherapy for brain tumor by genetic targeting and bio-chemical sensing*” in the subject line. Candidates should also request reference letters to be sent directly in PDF format by the Referees to the above mail addresses.