



RESEARCH TOPIC MEM11

Cancer-neuronal crosstalk in glioblastoma: novel therapeutic opportunities

Curriculum MEM Standard

Laboratory name:

Laboratory of Pharmacology and Brain Pathology

Pre-clinical Supervisor

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Abstract

Glioblastoma (GBM) microenvironment is emerging as a critical regulator of cancer progression. However, the involvement of brain resident cells such as neurons and astrocytes on tumor proliferation has been poorly investigated. Recently, a direct functional communication between neurons and glioma cells has been proposed as novel mechanism exploited by tumor to promote and sustain its invasion into the brain parenchyma. Despite this new and potentially promising aspect for GBM treatment, the mechanisms underlying the formation and, even more importantly, the specific contribution of brain cells in this process are unexplored. Based on this rationale, this proposal aims at clarifying the transcriptional rearrangements occurring in both GBM and the major brain resident cells, neurons and astrocytes, to identify the main activated pathways required for the establishment of glioma-neuron functional connections

Main technical approaches

- Handling of mouse models
- Morphological and functional techniques for brain analysis.
- Use of programming languages (Phyton, MaLab) for data analysis

Scientific references

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3. Zeng Q, Michael IP, Zhang P, Saghafinia S, Knott G, Jiao W, et al. Nature. 2019;573:526–31
4. Louis DN, Ohgaki H, Wiestler OD, Cavenee WK. 4th, revis ed. Lyon: International Agency for Research on Cancer; 2016.



5. Weller M, van den Bent M, Hopkins K, Tonn JC, Stupp R, Falini A, et al. Lancet Oncol. 2014;15:395–403.

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