

In vivo and in vitro experiments validate mathematical predictions for brain tumor behaviour

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Abstract (300 words limit)

Glioblastoma (GBM) is the most frequent and lethal malignant brain tumor in adults. Combined mathematical simulations and *in vitro* validation of malignant cellular structures formation in GBM has confirmed their usability to better understand the tumor behavior. In addition, mathematical model results predicted a synergistic decrease in tumor volume when both, cytotoxic therapies and antioxidants were applied. *In vitro* and *in vivo* results have confirmed this benefit not only in terms of tumor reduction but also in terms of toxicity reduction. Considering the excellent results, a clinical trial has been designed.

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