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EXISTENCE OF WAVE SOLUTIONS OF A GLIOMA MODEL IN A POROUS MEDIUM

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ABSTRACT

In this study, we extend our previous results [1], where we investigated the dynamics of a glioma model with continuous chemotherapy administered to tumours using a reaction-diffusion system. As before, we assume that tumours evolve not only due to proliferation but also due to cell motility. However, in this work, cell motility is modelled by nonlinear diffusion in a porous medium, while tumour proliferation is described by a logistic source term. Our motivation for modelling cell motility via a diffusion term, rather than as active transport, stems from the observation that low-grade gliomas grow very slowly, making it less likely to find tumour cells far from the tumour bulk. Our main focus is on exploring the existence of travelling wave solutions in the extended model and comparing the results with those of previous models, [2].

This is joint work with Juan Belmonte Beitia, Marek Bodnar and Monika J. Piotrowska.

REFERENCES

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