Pancreatic cancer growth model coupled with neuronal axons.

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The study of the interactions between tumor growth and the nervous system in the pancreas is relatively new and reveals a complex dynamic between cancer cells and axons [1]. We propose a model to describe and simulate these interactions. The model is built from biological hypotheses and is calibrated to experimental data using an optimization procedure. We are also interested in the asymptotic behavior of the model [3] and in the sensitivity of some parameters of the model [2]. The main motivation is to quantify the impact of denervation on tumor growth at a specific time and to confirm or refute some biological hypotheses.

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[2] S. IM. *Sensitivity estimates for nonlinear mathematical models.* Math. Model. Comput. Exp, **1(4)**, 407–414, 1993.

[3] L. Markus. *Ii. asymptotically autonomous differential systems.* Contributions to the Theory of Nonlinear Oscillations (AM-36), **3**, 17, 2016.

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