Prostate cancer: preventing invasion by immunotherapy

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Our analysis is motivated by the PC immunotherapy model proposed in Kronik et al. [1]. It occurs that asymptotically this model has one dimensional dynamics. Moreover, this dynamics is simple when only one boost is given, as we obtain an autonomous equation with the right-hand side being a monotonic function. Therefore, we easily study the behaviour of solutions. On the other hand, applying the treatment periodically, we asymptotically obtain a t-periodic right-hand side of the equation.

We present a general result concerning asymptotic dynamics of one ODE with the right hand-side $f(t,x)$ being t-periodic and monotonic in x. Next, we apply the general results to the PC immunotherapy model.

References

[1] N. Kronik, Y. Kogan, M. Elishmereni, K. Halevi-Tobias, S. Vuk-Pavlovic, et al., *Predicting outcomes of prostate cancer immunotherapy by personalized mathematical models*, PLoS ONE, 5(12), 2010, e15482.