Cancer Behavior: An Optimal Control Approach

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Abstract

With special attention to cancer, this essay explains how Optimal Control Theory, mainly used in Economics, can be applied to the analysis of biological behaviors, and illustrates the ability of this mathematical branch to describe biological phenomena and biological interrelationships. Two examples are provided to show the capability and versatility of this powerful mathematical approach in the study of biological questions. The first describes a process of organ genesis, and the second the development of tumors.

Keywords: Cancer; Objective Function; Constraint Function; Optimal Control Problem; Reaction Function.

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