Simulating the Tumor Growth with Cellular Automata Models

Abstract

In this paper, two types of cellular automata are studied in order to describe the 2-dimensional free growth of an avascular tumor under the effect of a limited nutrient source. On one hand a deterministic cellular automata approach is used. On the other hand a stochastic one is presented. An existing reaction-diffusion model including cell proliferation, motility and death is used. Finally, a numerical simulations that show the difference between these approaches are discussed.

References

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Index Terms

- Computer Science
- Information Sciences

Keywords

- Cellular automata (CA)
- avascular tumor
- immune
- reaction-diffusion model
- stochastic CA
- deterministic CA