



Research Field – Medical & Engineering Interdisciplinary Research

- The aim of antiangiogenic therapy is to stop the angiogenesis process (i.e. vascular system development) of the tumor; hence, to stop tumor growth
- Modern robust control algorithms provides automated drug administration

Research Concept – Present & Future

- In the present clinical practice there are general protocols for cancer therapies (like chemotherapy, radiotherapy)
 - these treatments have frequent and serious side effects
 - they are not cancer specific and not personalized for the patients
 - the treatment cost is low; however the usage is non-optimized
- Our concept: controller-based individualized treatment
 - these treatments have virtually no side effect
 - it provides personalized administration of cancer specific (antiangiogenic) drugs
 - the treatment cost is duly low due to the optimal drug administration

Objectives of the Research – Model Identification & Controller Design

- Create mathematical tumor growth model under angiogenic inhibition based on animal experiments
- Create constant and variable quasi-continuous low-dosage therapy protocol
- Design optimal robust control algorithms for continuous low-dosage therapy

Impact of the Research – Opening New Horizons in Cancer Treatment

- Improve cancer therapy efficiency
- Decrease treatment costs
- Minimize side effects of the therapy
- Improve the patient's quality of life (QoL)

Research Group

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