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MODELING AND SIMULATION OF CANCER

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MINI-SYMPOSIUM PROPOSAL

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Although there are many studies about the process of tumor development and progression, cancer is still a mystery. A team of scientists with different background is therefore needed to collaborate to obtain optimal treatments.

Current studies have demonstrated that computational models are needed to design personalized medicine — treatments based on an individual's unique tumors. On the other hand, in order to develop medicine, we need to understand tumors and their unique features. For this reason, many mathematical models have been introduced in order to study the tumor microenvironments and the effect of various drugs on these environments. Moreover, scientists have recently developed a class of stochastic and deterministic models to understand tumors' initiation, evolution and progression.

This proposed mini-symposium fits well with the themes of the CMBE meeting. It will bring together modelers who are interested in understanding the environment of tumors using both stochastic and deterministic models, as well as modeling the effect of cancer treatments to obtain optimal treatments.

The purpose of this mini-symposium is gathering the scientists in various fields who are interested in this subject and provide an environment, in which they are able to actively exchange their ideas. We would like to not only increase interest among the participants but also promote critical thinking.

Our proposed speaker list includes scientists from biology department, medical school, cancer institute, bioengineering, and mathematics. We are specifically interested in giving young scientists a chance to present their research and creating collaboration opportunities. We have organized the mini-symposium into two sessions: one focusing on designing optimal treatments, and a second session focusing on modeling tumor environment.