Mathematical advances in modelling cancer treatment

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Despite the tremendous progress made to improve treatments, cancer remains one of the leading causes of death worldwide. Furthermore, due to the aging of the population in developped contries, even non-deadly cancer types pose a dangerous threat to public medical structures and society at large. The design, analysis and optimisation of cancer treatments are expensive and time-consuming tasks, which can be eased thanks to the use of more theoretical tools.
Ranging from the analysis and simulation of ODEs and PDEs to optimisation, machine learning and computational statistics, mathematical oncology is nowadays one of the corner stones of interdisciplinary research to improve cancer treatments. We propose in this minisymposium to showcase some recent progress in this this very rich field.

We will give the floor to 4 researchers :

- **Annabelle Ballesta** (Inserm U900, Cancer Systems Pharmacology ATIP-Avenir team, Institut Curie, MINES ParisTech, CBIO, PSL Research University, Saint-Cloud, France) : *"Systems pharmacology and machine learning for optimizing treatments of brain tumors"*
- **Tiphaine Delaunay** (Université Bordeaux, CNRS, Inria, Bordeaux INP, IMB, UMR 5251) : *"Deciphering tumor response to propranolol in angiosarcomas by mathematical modeling and data assimilation"*
- **Emma Leschiera** (De Vinci Higher Education, De Vinci Research Center, Paris, France) : *"Modelling the impact of electroporation on spheroid growth and the release of damage-associated molecular pattern molecules"*
- **Federica Padovano** (Sorbonne Université, CNRS, Université de Paris, Laboratoire Jacques-Louis Lions UMR 7598, Paris, France) : *"The development of drug resistance in metastatic tumours under chemotherapy : An evolutionary perspective"*

A detailed version of the minisymposium's presentations, with abstracts of the individual talks, is available at : `https://chiaravilla.github.io/website/file/minisymposium_SMAI_25.pdf`.

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