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Hadrontherapy, a new hope against radio- and chimio-resistant tumors

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Abstract

Cancer is the second cause of death in Europe. Better understanding mechanisms of resistance to current treatments (radiotherapy and chemotherapy) and identifying new therapeutic approaches capable of treating tumors resistant is a major public health concern. In this lecture, we will discuss our recent investigations on mechanisms of resistance to treatments of tumors, using chondrosarcoma model. In addition, this lecture will present a new approach to treat these tumors, i.e. hadrontherapy. The latter uses particles beams (mainly proton and ^{12}C ions) to irradiate tumors. ^{12}C beams present an enhanced biological efficiency and a ballistic advantage with a maximum energy deposition at the end of the path (i.e., Bragg peak). A large dose can be delivered inside a deep tumor while the surrounding healthy tissues are preserved. Consequently, these new forms of radiotherapy may become efficient tool to treat cancers.

Biography

Karim Boumediene completed his Ph.D. in 1996 from Université de Caen Basse-Normandie (France), and became Assistant Professor, then full Professor in 2008. He was the laboratory director of Laboratoire Matrice extracellulaire et Pathologie from 2003 to 2012. He is implicated in numerous national and international collaborative research programs and has published more than 45 papers in reputed journals. He also serves as reviewer and is an editorial board member. In addition, he is a member of scientific board of his university since 2007, and also member of the University National Council.

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