5 de MAYO de 2021

12.00 h
Zoom

INMA Junior

Using a Jellyfish as a proxy to assess the impact of climate change on the oceans

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In order to assess the impact of ocean acidification and warming a study on the morphology and eco-physiology of the jellyfish Pelagia noctiluca was permformed based on a 2100 future ocean scenario. Additionally, it was study the effects of the interaction of both mentioned factors on young jellyfish specimens and its statoliths, firstly described in the present study. In order to evaluate these effects, in vitro borned jellyfish were reared and exposed to 4 different pH and Temperature treatments. Results show that acidification has a deep impact on statolith morphology eased by temperature.

Magnetic Nanoparticles and Alternating Magnetic Field for Cancer Therapy

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Magnetic hyperthermia (MH) has been proposed as a promising therapy for cancer treatment. Iron oxide nanoparticles are the most used material for this purpose, given their biocompatibility and physico-chemical properties. Under the exposure of an external alternating magnetic field (AMF), the local temperature near the magnetic nanoparticles (MNPs) increases and this phenomenon may be used to trigger cell death. Despite to the clear advantages of MH respect to the conventional therapies, are still several challenges to overcome for their establishment as a clinical routine. In this work we studied the influence of the effective concentration of MNPs into the tumor in the efficacy of the treatment. A 3D cell culture model using a human pancreatic tumor cell line was selected for the in vitro optimization of the AMF conditions. Then, MH treatment was tested in a heterotopic xenograft mouse model using the optimal AMF conditions. The understanding of these interaction MNPs - biological system is crucial to stablish the optimum treatment conditions and predict the future efficacy in the therapy.

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