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Presentation

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A feasibility study of using BNCT to treat Cholangiocarcinoma (CCA)

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Boron neutron capture therapy (BNCT) is a type of radiation therapy that utilizes the interaction of a stable boron (^{10}B) isotope and a thermal neutron to generate high-LET alpha and ^7Li particles that disrupt tumor cell DNA. Due to the low penetrating properties of alpha, the interaction is confined within cancer cells, and normal tissues are spared. BNCT has been demonstrated to be effective against specific types of cancer, including glioblastoma (GBM). The aim of this study is to apply BNCT to *cholangiocarcinoma* (CCA), which is a malignant tumor most prevalent in the northeastern part of Thailand. First, we measured L-p-Boronophenylalanine (L-BPA) accumulation in CCA cells using ICP-MS. Then, the survival curves of CCA cells exposed to neutron irradiation were investigated. The results show a relationship between neutron flux and the survival rates of CCA cells in our in vitro experiments. This gives us some insight on how to apply BNCT in CCA treatment.

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