Technology Opportunity, Ref. No. UB-25/162

A novel marker for prediction of radio- or chemotherapy response

Problem Solved:	**Technical Solution:**
There is an unmet need for biomarkers of radiosensitivity that can predict tumor response to radiation	Use of ECHDC2-specific antibody to predict radio- or DNA-targeting chemotherapy response.

Keywords Radiotherapy, DNA damage-inducing chemotherapy, oxidative DNA damage, biomarker, ECHDC2

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Reference in preparation

Background Radiotherapy techniques have improved the precision and accuracy of radiotherapy delivery. Adaptation for individual tumor biology remains elusive, however. There is an unmet need for biomarkers of intrinsic radiosensitivity that can predict tumor response to radiation to facilitate individualized treatment planning.

Invention We discovered that the mitochondrial ECHDC2 enzyme mediates oxidative damage in the nuclear DNA of the cell. This enzymatic activity is a major contributing factor to the sensitivity of cancer cells to DNA damage-inducing agents, in particular radiotherapy and chemotherapy. Loss of ECHDC2 activity causes radio- and chemotherapy resistance. ECHDC2-specific antibodies can be used to predict radio- or chemotherapy response.

Fields of Use Based on the invention diagnostic kits can be designed.

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