Enhancing Sensitivity to Radiotherapy and Chemotherapy of Head and Neck Cancer

Overview of Technology:

Head and neck cancer (HNC) is an area of significant unmet medical need. This invention relates to the identification and regulation of a novel molecular target that plays an essential role in making head and neck tumours more sensitive to radiation and chemotherapy. The inventors have shown that HNC tumours have significantly higher levels of mRNA encoding this target and that siRNA-mediated downregulation of this target leads to a 10X enhancement in the susceptibility of human HNC cell lines and xenografts to radiation therapy and chemotherapy. Further, a retrospective study of HNC patient samples shows that disease-free survival is associated with a significantly decreased level of expression for this molecular target.

This invention can be used in the diagnosis, treatment, and prognosis of HNC. The advantage provided by this invention is projected to be a significant reduction in required dosage for radiation and chemotherapy, hence reducing the potential side-effects associated with such treatment regimens. Currently, the investigators are advancing the development of small molecule inhibitors of this molecular target, as well as determining the mechanism of action for the enhanced susceptibility.

Related Publication:

AACR 2009 Annual Meeting, April 18-22, Abstract # 2290
Katz, D., Ito, E., and Liu F.F. On the path to seeking novel radiosensitizers. *Int J Radiat Oncol Biol Phys.* **73(4)**, 988-96 (2009).

Patent:

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