

学 位 論 文 の 要 旨

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<p>主論文の題名</p> <p>Radiation induces epithelial-mesenchymal transition in colorectal cancer cells</p> <p>主論文の要旨</p> <p>Radiotherapy remains a major approach to adjuvant therapy for patients with advanced rectal cancer. Nevertheless, the effects of radiation on malignant processes have yet to be clarified. The aim of this study was to assess the biological effects of radiation on colorectal cancer (CRC) cells with reference to epithelial-mesenchymal transition (EMT). We investigated the effect of radiation on two colorectal cancer cell lines, assessing cell morphology, motility, migration and invasive ability. Expression of molecules associated with EMT was determined using RT-PCR, Western blotting, and immunofluorescence staining in control and irradiated cells. We also used real-time RT-PCR to examine the expression of molecules associated with EMT before and after chemoradiotherapy in 26 rectal cancer patients who received preoperative chemoradiotherapy followed by radical surgery. Furthermore, we examined the relationship between disease recurrence and the expression of a number of proteins. Irradiation caused CRC cells to undergo phenotypic changes characteristic of EMT. In irradiated CRC cells, molecular changes consistent with EMT were observed. In clinical samples, we observed molecular changes consistent with EMT, and those changes were significantly enhanced in patients with recurring disease. These results indicate that irradiation induces an alteration to a malignant phenotype consistent with EMT in colorectal cancer cells.</p>			

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