

Radiosensitization of Toll-like receptor 7 agonists in Caco-2 cellsY. Moon^a, H. Ahn^a, J. Park^a, J.Y. Yi^b and E. Chung^a^a*Dep. of Biomedical Science, Hallym University, 39, Hallymdaehak-gil, 200-702 Chuncheon, Republic of Korea;* ^b*Lab. of modulation of radiobiological responses, Korea Institute of Radiation and Medical Sciences, 215-4, Gongneung-dong, Nowon-Gu, 139-706 Seoul, Republic of Korea**chungek@hallym.ac.kr*

In this present study, we intended to estimate radiosensitization of Toll-like receptor 7 agonists, Imiquimod (IMQ) in Caco-2 cells, adenocarcinoma of the colon. IMQ showed anti-tumoral activity in Caco-2 cells determined by clonogenic assay for 10 days after treatment. IMQ treatment induced NF- κ B activation, junctional disruptions, and pro-apoptotic activity in Caco-2 cells, determined by degradation of I κ -B, E-cadherin, and Bcl-xl, respectively. To determine radiosensitization of IMQ in Caco-2 cells, 4 Gy and 8 Gy of irradiation were applied in the presence or absence of IMQ treatment. IMQ enhanced radiosensitivity at 4 Gy of irradiation, determined from clonogenic assay. The molecular mechanisms underlying radiosensitization appears to be similar to molecular alterations involved in anti-tumoral activity. However, irradiation with IMQ treatment showed synergistic effects on downregulation of E-cadherin and Bcl-xl. From these results, we estimated IMQ as an effective radiosensitizer for colon cancer treatment. In vivo experiments are undergoing to confirm radiosensitization of IMQ in xenograft tumor model and syngeneic mouse tumor model.