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# Anti-cancer Cell Activity of Recombinant Canine Interferon (rCaIFN) and Its Combination with *Curcuma zedoaria* Plant Extract on Several Tumor-derived Cell Lines

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**Abstract**

Anti-cancer cell activity of recombinant canine interferon (rCaIFN) which produced using biology molecular techniques through silk worm bioreactor and baculovirus system on canine tumor-derived cell lines (MCA-B1, MCM-B2), human (HeLa) and rat (PC-12) was conducted. The dose tested for ethanol extract of *Curcuma zedoaria* was 21 ppm, while the rCaIFN dose was 104 IU/mL. Recombinant canine interferon more effective in canine tumors cells compared to non-canine cells. Maximum antiproliferation activity of rCaIFN on each tumor cells was 59 % and 52 % for MCM-B2 and MCA-B1, 19 % for HeLa and 13 % for PC-12 cells. When rCaIFN was combined with ethanol extract of *Curcuma zedoaria* plant extract and exposed to canine cells, antiproliferation activity was higher than rCaIFN or ethanol extract of *Curcuma zedoaria* alone. The maximum activities for combination of rCaIFN with *Curcuma zedoaria* plant extract on each cells was 76 % for MCM-B2, 84 % for MCA-B1, 55 % for HeLa and 44 % for PC-12; while for combination of rCaIFN with choloroform extract of *Curcuma zedoaria* were 79 % for MCA-B1, 73 % for MCM-B2, 54 % for HeLa and 47 % for PC-12 cells, respectively. We suggested that combination of rCaIFN with ethanol and chloroform extracts of *Curcuma zedoaria* have a synergistic effect on the growth inhibition activity on tested tumor cells, and this activity seemed to be more effective on canine derived-tumor cells compared to human and rat cells due to the origin of the recombinant interferon source. This phenomenon seems to be a promising way for the cancer treatment. The combination of rCaIFN with other plants extract is in progress.

**Keywords:** Canine recombinant interferon, *Curcuma zedoaria*, growth inhibition, tumor cells