Acetylated mangostin alleviates many anticancer effects of mangostin at the molecular levels

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We have studied versatile potential usages of acetylated derivatives of many flavonoids synthesized by biochemical modification methods. Among them, Mangostin is reported to induce apoptosis and also reported to have a cancer preventive effect. In this study, we are to compare the anticancer effect between mangostin and acetylated mangostin (ac-mangostin). Mangostin treatment decreased the cell growth at 10 µg or greater concentration, but ac-mangostin treatment did not show any growth inhibition at 10 µg concentrations. MTT assay showed that proliferation effect was delayed by about 1/10 or more in ac-mangostin compared to mangostin. FACS analysis, that the sub G1 phase was increased at the treatment of mangostin and ac-mangostin. However, such a phenomenon could be delayed in the ac-mangostin treatment group in time at the same concentration. To analyze this difference at the molecular level, we performed western blot analysis. Active form of PARP, or Caspase 9 and Bax are increased in mangostin treatment, but there was delayed in ac-mangostin treatment group. An anti-apoptotic protein Bcl-2 was decreased in mangostin treated group, but delayed in ac-mangostin treated group. Interestingly, putative biomarker protein for the drug resistance, FosB is increased in high concentration of mangostin, but delayed in ac-mangostin treated group. Therefore, these results suggest that the acetylation form of flavonoids can be useful drug for the prevention of cancer, because it can delay the cell proliferation activity and alleviate the efficacy of toxic anticancer drugs even at the same concentration.

Biography
Han-Heom Na has completed MS degree from Kangwon National University at the age of 26 years, and is now studying as a PhD student in Kangwon National University. He has published 3 papers on journals related in cancer cell biology. Especially, I received the Best Poster Award at the Annual meeting of the Korean Society for Cell Biology held in Jan 6, 2017.

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