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## Salivary gland regeneration following radioiodine damage by ginseng administration in a murine model

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**Background:** Oxidative stress is the one of the components after radioiodine (RI) therapy leading to salivary gland (SG) dysfunction. However, the protective effects of antioxidants on RI-induced SG damage have not been well investigated. Ginseng is an herb with many active biological activities, including antioxidant activities. We investigated the functional effects of ginseng administered prior to RI therapy compared to amifostine (a well-known antioxidant) in a murine model

**Materials and Methods:** Four-week-old female C57BL/6 mice (n=48) were divided into four groups; a normal control group, a RI-treated group (0.01 mCi/g mouse, p.o), a ginseng (0.2mg/g mouse, i.p) and RI-treated group, and an amifostine and RI-treated group. Salivary flow rates and lag times were measured, and morphologic and histologic examinations and TUNEL (terminal deoxynucleotidyl transferase biotin-dUDP nick end labeling) assays were performed. Changes in salivary <sup>99m</sup>Tc pertechnetate uptake and excretion were followed by single-photon emission computed tomography.

**Results:** Salivary flow rate and saliva volume in ginseng and amifostine group were better than RI -treated group. Ginseng and amifostine group showed more-mucin rich parenchyme and less periductal fibrosis than RI-treated group. Immunohistochemistry and RT-PCR results revealed that salivary epithelial (AQP-5), endothelial (CD31), and SG progenitor cells (c-Kit) were protected from radiation damage in ginseng group. The number of apoptotic cells was decreased in ginseng group, compared to the RI-treated group. In addition, <sup>99m</sup>Tc pertechnetate excretion amount was markedly lower in RI-treated mice than RI group.

**Conclusion:** Ginseng is likely to have radioprotective ability on the salivary gland in mouse after RI administration.

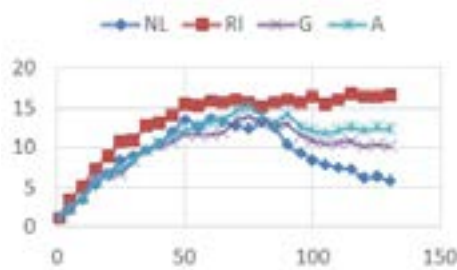


Figure 1. <sup>99m</sup>Tc pertechnetate excretion amount was markedly lower in RI-treated mice than RI group

### Biography

Ji Won Kim has her passion in improving the health and wellbeing for head and neck cancer patients. Also she has an interest in salivary gland disease and aging. She is working in Inha university medical center after ENT resident training and fellowship in Asan Medical center. She worked as a member in asan institute for life science. She has a lot of papers about head and neck cancers treatment and therapeutic approach to overcome salivary dysfunction.

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