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Protective effect of metallogluconates against UVA-induced cutaneous lesion in HR-1 hairless mice

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Abstract:

UVA-induced reactive oxygen species (ROS) generation is well known to cause cutaneous lesion in the skin, therefore, it is important to prevent the skin from UV damage due to ROS generation. In 2000, we reported first the in vivo detection and imaging by chemiluminescence (CL) method of the generated ROS in the skin of live mice following UVA-irradiation [1]. Using this method, we found that superoxide anion radical ($\bullet\text{O}_2^-$) was intrinsically generated in the skin of live mice and singlet oxygen ($^1\text{O}_2$) was exclusively produced in the skin following UVA-irradiation. In our previously report, we found that topical application and oral administration of zinc compounds to the skin of live mice reduce the formation of UVA-induced ROS [2-3]. Then, in the present study, we examined whether metallogluconates (zinc gluconate (ZnGA) and copper gluconate (CuGA)) topically applied and orally administered reduce the intrinsic and UVA-induced ROS generations in the skin of live mice or not. We found that topical application and oral supplementation of CuGA reduced CL intensities in terms of the formation of UVA-induced ROS and ZnGA suppressed inflammation caused UVA-exposure.

Key words: [skin](#), [UVA](#), [reactive oxygen species\(ROS\)](#), [inflammation](#), [hairless mouse](#), [zinc-gluconate](#), [copper-gluconate](#)

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