

Environmental impact of toxic substances on wildlife and species differences

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【Outline of survey】

Wildlife and human are constantly / repeatedly exposed to numerous environmental chemicals. Environmental toxic substances, such as polychlorodibenzo-p-dioxins (PCDD), polychlorobiphenyls (PCBs), DDTs, polycyclic aromatic hydrocarbons, are ubiquitous contaminants in the environment. In previous studies, DNA-adducts were detected in aquatic mammals, which inhabited in contaminated area with environmental pollutants. The exposure to environmental chemicals may elevate the risk of cancer for wildlife, same as human.

My research subject is to elucidate the biological effects of environmental pollutants on wild animals, especially cancer or DNA damages. In this study, we focus on the wildlife in Africa, since there is rising concern that recent development in Africa may cause the serious destruction of environment. I will survey the accumulation of environmental toxic substances in wild animals in Africa and investigate their toxicological effects.

【Expected results】

In this study, I will characterize cytochrome P450 and phase II enzymes in wildlife species, which are key enzymes to determine the sensitivity to environmental chemicals in animals including human, laboratory animals and wildlife. My project will make contribution to the risk assessment of environmental pollution for wild animals, offering the basic data of xenobiotic-metabolisms in wildlife.

There is little information on environmental pollution in Africa. In this study, I will clarify the actual situation of environmental contaminations in wild animals and environment, e.g., water, soil and atmosphere, in African countries.

【References】

- Ishizuka M, Okajima F, Tanikawa T, Min H, Tanaka KD, Sakamoto KQ, Fujita S. Elevated warfarin metabolism in warfarin-resistant roof rats (*Rattus rattus*) in Tokyo. *Drug Metab Dispos.* 35: 62-66 (2007)

【Term of project】 FY2007 - 2011

【Budget allocation】 16,000,000 yen
(2007 direct cost)

【Homepage address】 None