

Abstract

[Research Title]

Establishment of New Basic Technology for Risk Assessment of Environmental Pollutant in Wildlife by Using Culture Cells.

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Compared to studies evaluating the effects of pollutants on experimental animals, studies assessing the impacts of pollutants on wildlife are difficult to perform. Therefore, in this study, we aimed to use cultured cells to determine the effects of pollutants on wildlife. Cultured cells exhibit great potential as bioresources for wildlife and can be obtained from dead animals. Generally, somatic cells obtained from dead wildlife are limited to skin- or muscle-derived fibroblasts owing to their better maintenance in vitro compared to other organ-derived cells. Here, we examined the effects of pollutants on fibroblasts. Rodenticides are among the major environmental pollutants in Japan. They are used to eradicate rodents; however, their effects on non-target species remain unclear. This study focused on the green sea turtle, *Chelonia mydas*. Rodenticides are widely used in the Ogasawara Islands, the natural habitat of green sea turtles, for rat eradication. Hence, green sea turtles are listed as high-risk animals for rodenticide exposure in the Ogasawara Islands. Here, we established an immortalized cell line of green sea turtles and compared the effects of rodenticides on this cell line in vitro to the in vivo results. Notably, the in vitro and in vivo results were consistent. Overall, our findings highlight cultured cells as useful tools for the risk assessment of pollutants in wildlife.

[References]

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