

## **Development of external OTC medicine using the model mice of xerotic pruritus**

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Xerotic pruritus (itching associated with dry skin) is a common symptom in many skin diseases or a general condition in winter season. Thus the external agents for such condition become an important genre of the OTC medicines in Japan. In the developing process of such agents, the experimental animal model which shows dry skin and itching is necessary to evaluate the performances of them. Moreover, the model should have no systemic diseased backgrounds because the effect of external agents is limited in the local applied sites. According to this purpose, we established the model of the xerotic pruritus by the topical daily treatment with the combination of organic solvent (acetone/ether) and water for 5 days in the healthy mice. The itch-associated behavior (scratching) was induced remarkably by the treatment of the combination but slightly by only the organic solvent. Thus the treatment of water and the lack of hydrophilic moisturizing factors is the important process to develop the itchy skin lesion. In the model, alteration of the distribution of cutaneous nerve fibers and significant increase of nitric oxide was observed on the local itchy skin. These factors might be novel local parameters of the xerotic pruritus. In addition, the model was useful to evaluate the effects of the active elements of the agents which include not only the principal agents but also topical humectants and secondary ingredients. Taken together, such a simple animal model appearing the local cutaneous lesion must be a useful tool to develop the external OTC medicines.