

## Establishment of a molecular targeting therapy for dog bladder cancer by using dog bladder cancer organoid culture

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### 【Background】

- Since dog bladder cancer is usually muscle-invasive and the malignant level is quite high, the proper treatment has not been established in a veterinary clinic. In the previous study, we generated a dog bladder cancer organoids, which could reproduce the cancer microenvironment in vivo and could be applied to the anti-cancer drug sensitivity test for each patient. However, it has not been revealed whether molecular targeting drugs are effective in the inhibition of the survival of the organoids.

### 【Object】

-The purpose of this study is to identify the effective molecular targeting drugs against dog bladder cancer by using dog bladder cancer organoids.

### 【Method】

-Dog bladder cancer organoids were treated with 14 molecular targeting drugs for 72hours. The survival rate of organoids was evaluated by an alamarblue cell viability reagent. The effects of drugs on the activation and expression of intracellular signal molecules were investigated by performing western blotting.

### 【Result】

-Among 14 drugs, treatment of gefitinib, erlotinib, trametinib, and afatinib inhibited the cell viability of organoids in a dose-dependent manner. Furthermore, EGFR, and ERK, and CD44 expression were suppressed by erlotinib treatment.

### 【Conclusion】

-These results suggest that EGFR inhibitors and a MEK inhibitor might suppress the growth of dog bladder cancer organoids through suppression of CD44 expression. This result is expected to be useful for the development of molecular targeting therapy for bladder cancer diseased dog.