

## Scientific research process

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*Basic Study*

**Catheterization of the gallbladder: a novel mouse model of severe acute cholangitis**

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## Scientific Research Process

1 What did this study explore?

We established a repeatable and reversible mouse model of SAC through cholecystic catheterization. This animal model can be used to study disease progression and treatment of SAC.

2 How did the authors perform all experiments?

To solve the technological difficulty that the common bile duct of mice is too slim to complete successful injection, we performed cholecystic catheterization 3 days after ligation of the bile duct. At that time, the gallbladder was engorged and flexible enough to catheterize. We also performed experiments of molecular biology, including WB, PCR, IHC and so on, to prove the animal model is a repeatable and reversible mouse model of SAC.

3 How did the authors process all experimental data?

Data were presented as means standard deviation. Statistical significance between two groups was determined using the Student t-test. One-way analysis of variance followed by the TukeyKramer adjustment was used to examine differences among multiple groups.  $P < 0.05$  was considered to be significant. All statistical analyses were conducted using SPSS 11.0.

4 How did the authors deal with the pre-study hypothesis?

The animal model of SAC has been established in rodents, such as rats. However, the anatomical construction of bile ducts in mice is more similar to that in humans because rats do not have a gallbladder. We hypothesis that a repeatable and reversible mouse model could be used to study disease progression and treatment of SAC better. However, the common bile duct of mice is too slim to complete successful injection. Here, we performed cholecystic catheterization 3 days after ligation of the bile duct. At that time, the gallbladder was engorged and flexible enough to catheterize.

5 What are the novel findings of this study?

Establishing a repeatable and reversible mouse model of SAC is available. This animal model can be used to study disease progression and treatment of SAC.

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