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Tamoxifen Administration in Transgenic Mice

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Protocol status: Working
We use this protocol and it's working

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Abstract

This protocol describes the procedure for inducing CreER-mediated recombination at loxP sites in transgenic mice through the administration of tamoxifen or 4-hydroxytamoxifen (4-OHT).

4-OHT is the active metabolite of tamoxifen and directly binds to the estrogen receptor (ER) domain of CreERT2. Therefore, tamoxifen is preferred for systemic or long-term *in vivo* induction due to its stability, whereas 4-OHT enables more precise and rapid Cre activation but is less stable and requires careful handling.

Attachments

DOCX

Ding_Lab_Tamoxifen A...

16KB

Materials

- Tamoxifen (Sigma-Aldrich, Cat.No.H5648)
- 4-hydroxytamoxifen (Sigma-Aldrich, Cat.No.H6278)
- Sunflower oil
- Corn oil
- Ethanol
- Sterile syringes
- Water bath with sonication

Safety warnings

Wear appropriate PPE as required by your institution and read through SDS materials for all reagents.

Ethics statement

Prior ethics approval (e.g. IACUC) should be obtained before performing these experiments. Approval was obtained by the Stanford University IACUC before any procedures were performed.

1 Determine if tamoxifen or 4-hydroxytamoxifen is needed for your experimental design.

STEP CASE

4-Hydroxytamoxifen Preparation and Administration 6 steps

Preparation of 4-Hydroxytamoxifen Solution

2 Dissolve 4-hydroxytamoxifen in ethanol at a concentration of 50~100 mg/mL by sonicating for 15 minutes at 55 °C.

3 Add sunflower oil to reach a final concentration of 10 mg/mL, sonicating for 15 minutes at 55 °C.

4 Use the solution within 2 hours of preparation.

Injection

5 **Notes:** The duration of injections depends on the transgenic mouse line and the desired level of gene recombination, as determined by previous studies and post hoc Cre expression analysis.

6 Administer 4-hydroxytamoxifen via intraperitoneal (IP) injection.
Dose: 50-80 mg/kg body weight, once daily for 1 to 7 days, depending on experimental requirements.

Post-Injection Monitoring

7 Monitor mice during the injection period and any post-treatment waiting period for signs of adverse reactions or distress.