

Tamoxifen diets for inducible Cre-LoxP systems



DIETS WITH TAMOXIFEN ACTIVATE CreER

Tamoxifen-containing diets should be considered an option if you are using a model with Cre under the control of a mutated estrogen receptor.

Inotiv makes a variety of tamoxifen-containing diets customized to meet your research needs. We also make a variety of doxycycline-containing diets for Tet regulated systems.

If you have any questions, don't hesitate to contact a nutritionist at askanutritionist@inotivco.com.

KEY POINTS FROM LITERATURE

- Length of treatment varies from 1-2 weeks^(1, 2, 5, 6, 7, 8) to 1-2 months^(3, 4, 8)
- Pure tamoxifen^(1, 5, 8) and tamoxifen citrate^(1, 2, 3, 4, 6, 7) are both effective
- Usual tamoxifen doses are ~40-80 mg per kg body weight per day
- Typical inclusion for pure tamoxifen is 250 mg⁽⁸⁾ or 500 mg^(1, 5) and for tamoxifen citrate is 400 mg per kg diet^(1, 2, 3, 4, 6, 7)
- Initial weight loss of 10% is reported^(1, 2, 4, 7, 8), associated with reduced food intake⁽²⁾
- Subsequent recovery of body weight after returning to regular diet may be compromised by gene inactivation^(2, 7)

TEKLAD NOW STOCKS TAMOXIFEN AND TAMOXIFEN CITRATE

Tamoxifen is added to the diet as a tamoxifen-sucrose mixture. Users are encouraged to use the stocked supply. However, Inotiv will continue to work with customer prepared mixes. If you choose this option, please consult a nutritionist for additional information about preparing and sending the mixture.

TAMOXIFEN MG PER KG DIET	DAILY TAMOXIFEN MG PER KG BODY WEIGHT ¹	DIET CODE	
		NATURAL	COLORED (RED)
250	40	TD.130855	TD.130855
500	80	TD.130857	TD.130858
400 citrate ²	40	TD.130859	TD.130860 ³

¹ Assumes 20-25 g body weight and 3-4 g intake

² Tamoxifen citrate is 66% tamoxifen

³ Referred to as TAM400/CreER in Europe (TD.55125)

These example diets all have tamoxifen premixed with ~5% sucrose as a palatability enhancer; however, feed aversion may still occur.

Teklad Global 2016 (base diet in these examples) is only one of several minimal phytoestrogen diets Teklad produces. Consult a nutritionist about use of other base diets.

KEY PLANNING INFORMATION

- Minimum order quantity is 3 kg, sufficient for feeding ~20 mice for one month
- Store diet refrigerated and plan to use within six months
- Typical lead time is two weeks (four weeks if irradiated)
- Irradiation (20 - 50 kGy) is optional, and must be requested at time of order

MICE NEED TIME TO ADJUST. PLAN FOR:

- Initial reduction in food intake and weight loss
- Daily observation of animal tolerance - consult your IACUC for monitoring metrics
- Intervene when necessary (see below)

OTHER RESEARCHERS HAVE THE FOLLOWING ADVICE IF INTAKE SEEMS TO BE A PROBLEM:

- Determine if a lower dose is effective for your model by conducting a tamoxifen dose feeding trial.
- Gradually acclimate mice by mixing tamoxifen containing pellets with regular feed pellets.
- Wet the food, then place in a dish inside the cage (requires daily replacement).
- Feed tamoxifen diet on weekdays, regular diet on weekends.
- Alternate weeks (two weeks on tamoxifen diet, one week off) for longer treatments.

SAFE HANDLING OF TAMOXIFEN DIETS

- Tamoxifen is a selective estrogen receptor modulator (SERM) meaning it can repress actions of estrogen or have pro-estrogen effects.
- Usual dose for therapeutic effects in humans is 20 mg/day. Tamoxifen diets for rodents typically contain ~1-2 mg/pellet.
- Accidental tamoxifen exposure can be minimized by using typical lab precautions of lab coat, gloves, and mask when handling the diet.
- Your chemical safety department should be contacted for additional institution specific guidelines for handling and disposal of tamoxifen containing diets.

References

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