Applied StemCell
Genome editing *in vitro* and *in vivo*

Site-Specific Knock-in Technology
TARGATT™

Cre-Expressing Rat Models

Applied StemCell is excited to provide a Cre-driver rat repository for paired breeding with "floxed" conditional rat models. These Cre rat lines will express the Cre recombinase under tissue-specific promoters (see table below) for generating tissue-specific, conditional/ inducible rat models. The Cre rat lines will provide a much needed resource for generating physiologically relevant human cardiovascular or neurological disease rat models using either our proprietary integrase-based TARGATT™ System or CRISPR Cre-Lox System.

Cre-Expressing Rat Lines

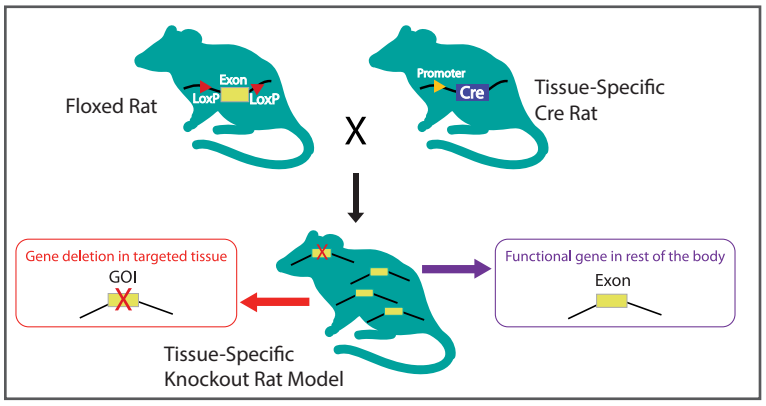
Key Features

- 12 Cre-driver rat models: 10 neuronal lineages, 1 cardiovascular llineages, and 1 Cre reporter line.
- Generated using complementary TARGATT™ and CRISPR/Cas9 genome editing technologies
- Sprague Dawley Rats
- Optional! We can generate your "floxed" conditional rat models and/or breed your tissue-specific gene expression/ knockout rat models for you.

Promoter Construct	Tissue/Cell-Specificity	Technology
Wnt1-CreERT2	Developing neural crest and midbrain	CRISPR
PDGFb-CreERT2	Neurons of cortex	TARGATT
MOR23-CreERT2	Olfactory sensory neuronal lineage	TARGATT
Pomc-CreERT2	Neurons involved in the control of food intake (arcuate nucleus (hypothalamus) and solitary tract nucleus (hindbrain)	CRISPR
HB9-CreERT2	Motor neurons	CRISPR
Drd1a-CreERT2	Dopamine D1 receptorexpressing neurons	CRISPR
Gad67-CreERT2	GABAergic neurons, islet cells and spermatocytes	CRISPR
PAG-CreERT2	Glutamatergic neurons	TARGATT
GFAP-CreERT2	Astrocytes in CNS	TARGATT
Tie2-CreERT2	Vascular endothelial cells including brain and retinal capillary	CRISPR
SMHC-CreERT2	Vascular smooth muscle cells	TARGATT
CAG-LSL-GFP-LacZ	Cre reporter/test line expressing GFP and LacZ	TARGATT

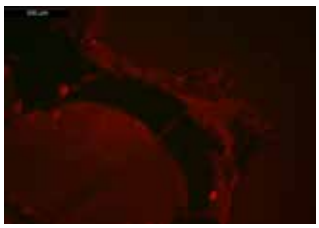
TARGATT™ Cre-Rat Model Benefits:

- Single copy knock-in in an active locus: avoids gene silencing and genomic instability
- Direct microinjection into rat zygotes without the need for rat ES cells
- Ideal for tissue-specific/ inducible expression rat models, reporter gene knock-in, gene overexpression, and humanized/ chimeric rat models
- Uses Phic31 integrase to mediate an irreversible integration of large transgene(s) into a preselected, safe harbor locus for high level gene expression.



CRISPR/Cas 9 Cre-Rat Benefits:

- Efficient genome editing technology for quick turnaround.
- Ideal for locations not requiring safe harbor placement.


(a)

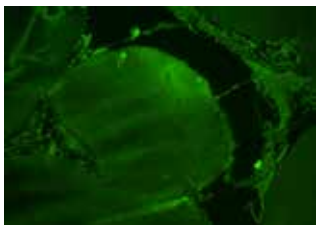

(b)

Figure 1. Histological confirmation of MOR23-Cre-ERT2 cross with CAG-LSL-GFP-LazZ rat embryo. a) 5X magnification of Cre expression viewed with the red flourescent channel. (b) 5x magnification of GFP expression viewed with the green fluorescent channel.

Vistit our Cre-Rat website: https://www.appliedstemcell.com/research/products/targatt-genome-editing/cre-rat-models

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