



# Light Producing Animal Models

These LPTA Animal Models are transgenic mice with a luciferase reporter driven by the promoter listed under the “Animal Model” heading. E-mail [BusinessDev@caliperLS.com](mailto:BusinessDev@caliperLS.com) or call 508.497.6592 for current availability information.

## Inflammation

<b>Gadd45b</b> (growth arrest & DNA damage inducible 45-Beta)	CD-1	Cancer – apoptosis; MAP kinase- and NF- $\kappa$ B-mediated signaling pathways; inflammation
<b>iNos or Nos2</b> (macrophage nitric oxide synthase)	FVB/N	Inflammation; sepsis
<b>Epx* or Epo</b> (eosinophil peroxidase)	FVB/N	Eosinophilia – parasitism or asthma; bone marrow transplantation
<b>Saa1</b> (serum amyloid A-1)	BALB/C	Arthritis, amyloidosis, sepsis
<b>IL-2</b> (interleukin-2)	CD1	Inflammation, cancer
<b>Cox2 or Ptg2</b> (cyclooxygenase-2)	BALB/C	Inflammation, pain
<b>TNF<math>\alpha</math></b> (tumor necrosis factor-alpha)	BALB/C	Inflammation – arthritis or inflammatory bowel disease; cancer – apoptosis; sepsis
<b>NF<math>\kappa</math>B-RE</b> (NF $\kappa$ B response elements)	BALB/C	Inflammation – arthritis or inflammatory bowel disease; cancer – apoptosis
<b>NF<math>\kappa</math>B-RE (Oslo)</b> (NF $\kappa$ B response elements)	BALB/C & DBA/1	Inflammation – arthritis or inflammatory bowel disease; cancer – apoptosis
<b>I<math>\kappa</math>B<math>\alpha</math></b> ([inhibitor of NF $\kappa$ B] $\alpha$ )	BALB/C	Inflammation – arthritis or inflammatory bowel disease; cancer – apoptosis; sepsis

## Oncology/Angiogenesis

Animal Model	Background Strain	Applications
<b>Vegfr2*</b> (vascular endothelial growth factor receptor-2)	FVB/N	Inflammation; angiogenesis processes incl. embryonic or post-natal development, wound healing
<b>Vegfr2-KI* (knock in)</b> (vascular endothelial growth factor receptor-2)	C57/BL6 Albino & Outbred (nu/nu)	Cancer, inflammation; angiogenesis processes incl. embryonic or post-natal development, wound healing
<b>Vegf*</b> (vascular endothelial growth factor)	FVB/N	General angiogenesis reporter
<b>EL1-luc/EL1-TAg</b> (Elastase 1)	FVB/N	Spontaneous and bioluminescent pancreatic tumor model
<b>LucRep</b> (Cre-loxP dependent luciferase)	FVB/N	Enables bioluminescence imaging of other Cre-loxP dependent tumor models

## Drug Metabolism / Toxicology

Animal Model	Background Strain	Applications
<b>Ho1 or Hmox1</b> (heme oxygenase-1)	FVB/N	Hypoxia; heavy metal and chemical toxicity – CdCl <sub>2</sub> , iron overload, or doxorubicin
<b>CYP3A4</b> (cytochrome p450 isoform 3A-human promoter)	FVB/N	Drug metabolism; CYP3A4 gene regulation studies; CYP3A4-mediated drug-drug interactions
<b>Cyp3a11*</b> (cytochrome p450 isoform 3a-mouse promoter)	FVB/N	Drug metabolism; Cyp3a11-mediated drug-drug interactions
<b>CYP3A4 RAT*</b> (cytochrome p450, isoform 3A-human promoter)	SD RAT	Drug metabolism; CYP3A4 gene regulation studies; CYP3A4-mediated drug-drug interactions
<b>Cyp1a2</b> (cytochrome p450, isoform 1a2-mouse promoter)	CD-1	Cyp1a2-mediated drug-drug interactions; toxicity
<b>Cyp19 or Aro</b> (aromatase)	CD-1	Estrogen synthesis; regulation of estrogen production
<b>γGcs-h or Gclc</b> (gamma-glutamylcysteine synthetase)	CD-1	Heavy metal and chemical toxicity – CdCl <sub>2</sub> , chloroform, or MeHg; chemoprotection
<b>Sod1</b> (superoxide dismutase)	CD-1	Toxicity including heavy metal and chemical – CdCl <sub>2</sub>
<b>Mdr1 or Abcb1b</b> (multiple drug resistance-1)	Mdr1	Drug transport
<b>Gadd45α</b> (growth arrest & DNA damage inducible 45-alpha)	CD-1	Toxicity – heavy metal and chemical
<b>Gadd153</b> (growth arrest & DNA damage inducible 153)	CD-1	Toxicity – heavy metal and chemical

## Endocrine Disruptor

Animal Model	Background Strain	Applications
<b>Kap</b> (kidney androgen regulated promoter)	FVB/N	Kap gene regulation; androgen regulation; endocrine disruption
<b>pS2/TFF1</b> (trefoil peptide-1)	FVB/N	Inflammatory bowel disease; colitis; gastric ulcer
<b>Mup1</b> (major urinary protein-1, or alpha-2u globulin)	FVB/N	Mup gene regulation; androgen regulation; endocrine disruption
<b>Esr1</b> (estrogen receptor-alpha)	CD-1	Esr1 gene regulation studies

## Metabolic Disease

Animal Model	Background Strain	Applications
<b>RIP</b> (rat insulin gene promoter)	FVB/N	Insulin production applications; pancreatic islet transplantation
<b>Retn</b> (resistin)	C57BL/6	Obesity – fasting, high-fat feeding, insulin resistance; obesity – adipose tissue transplantation
<b>mIns2</b> (mouse insulin promoter)	C57BL/6	Insulin production changes studies resulting from fasting, high-fat feeding, streptozotocin treatment, or pancreatic islet transplantation

## Other Disease Areas

Animal Model	Background Strain	Applications
<b>CMV</b> (cytomegalovirus promoter)	FVB/N	Tissue transplantation R&D studies
<b>Bmp4</b> (bone morphogenetic protein-4)	FVB/N	Wound healing, estrogen modulation of gene expression
<b>Gfap</b> (glial fibrillary acidic protein)	FVB/N	Astrocyte regeneration (primarily CNS), including physical trauma, chemical insult, or meningitis
<b>β-Actin</b> (murine beta actin promoter)	FVB/N	Model may be used as donor animals for studying the transplantation of various tissue types
<b>GAPDH</b> (human Phosphoglyceraldehyde dehydrogenase promoter)	FVB/N	Model may be used as donor animals for studying the transplantation of various tissue types

### \* Listing Notes

All of the transgenic models are in MICE except for the CYP3A4 which has been developed in both mouse and RAT. The gene abbreviations presented are those most commonly used in NCBI locus link, GENBANK, the Mouse Genome Informatics database, and in the literature. In some cases two alternative abbreviations for the same gene are given. Most of the models consist of the mouse promoter driving the luciferase reporter. These are indicated with gene abbreviation in lower case other than the first letter that is capitalized. For a few of the transgenic models, the human promoter was used. Having the gene abbreviation in all upper case indicates the models using a human promoter.

### Availability

Animals are available in limited numbers from our Taconic colonies, Xenogen Biosciences in Cranbury, New Jersey, or Xenogen Corporation in Alameda, California.

For LPTA® animal model lines CYP3a11, CYP3A4 rat, Epx, Vegfr2 and Vegf: these product lines and their use are claimed by pending U.S. and foreign patent applications owned by Xenogen Corporation.

LPTA® animal model lines contain a luciferase gene provided under a license from the Regents of the University of California and Promega Corporation. Under the terms of those licenses, the use of these products and derivatives thereof is strictly limited to that of a research reagent. No right to use these products for any diagnostic, therapeutic, or commercial application will be conveyed to the customer of these products.

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