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# PRODUCT SHEET

## LPTA® Animal Model *NFκB-luc* Xen

**Mouse Strain:** DBA1, BALB/C-Tg(*NFκB-RE-luc* [*Oslo*])-Xen

**Common Name:** *NFκB-luc* (*Oslo*)

**Genotype:** Hemizygote

**Background Strain:** DBA/1 or BALB/C (originated in C57BL/6J x CBA/J hybrid and subsequently backcrossed into these background strains)

**Coat Color:** DBA/1 are dilute brown; BALB/C are albino

### *NFκB-luc* (*Oslo*) Applications

- Inflammation
  - Arthritis
  - Inflammatory bowel disease
- Cancer
  - Apoptosis

Xenogen's LPTA® Animal Models use human or mouse inducible promoters to drive luciferase expression that can be imaged and quantified with IVIS® Imaging Systems. LPTA® Animal Models

are designed for a variety of therapeutic areas including:

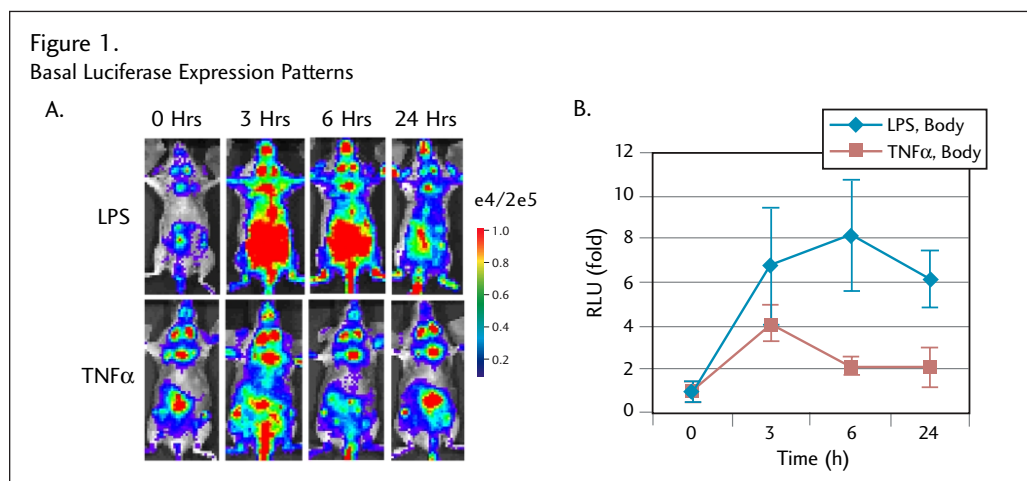
- Drug Metabolism/Toxicology
- Inflammation
- Chemical Toxicity
- Angiogenesis/Oncology
- Endocrine Signaling
- Metabolic Disease
- Organ Transplant

### Description of Model

LPTA® animal model DBA1, BALB/C-Tg(*NFκB-RE-luc* [*Oslo*])-Xen, commonly called *NFκB-luc* (*Oslo*), carries a transgene containing 3 *NFκB* response element sites (RE) from the Igκ light chain promoter and modified firefly luciferase cDNA (Promega pGL-3). Basal expression of the reporter was observed in lymph node (neck), thymus (thoracic region), and Peyer's patches (abdominal region). The reporter is inducible during inflammatory processes triggered by LPS and TNFα. The model provides for the rapid study of transcriptional regulation of the *NFκB* gene and the treatment of inflammatory diseases and cancer. This LPTA® animal model line is available from Charles River Laboratories.

### Origin

The original background strain is C57BL/6J X CBA/J. This transgenic line was created by microinjection method using C57BL/6J X CBA/J donor fertilized eggs in the laboratory of Dr. Rune Blomhoff. Subsequently, the transgene was bred into both the DBA/1 and BALB/C strains.



**Figure 1.** Basal luciferase expression patterns in *NFκB-luc* (*Oslo*) LPTA® animal model. The mice were imaged from the ventral view. Male (A) *NFκB-luc* (*Oslo*) mice (n=2) were imaged at T=0 (pretreatment) and 3, 6 and 24 hours following intraperitoneal injection of LPS (1mg/kg) or TNFα (2 μg/mouse). The data (B) represent the mean fold of induction.

## Applications

The *NFκB-luc (Oslo)* LPTA® animal model is useful in studying sepsis, arthritis, inflammatory bowel disease, apoptosis, tumor development, NFκB gene regulation, and the treatment of inflammatory diseases and cancer.

## Example Phenotypes

The coat color of the LPTA® animal model is either dilute brown or albino depending upon background strain. The mice behave as normal DBA/1 or BALB/C mice and have been observed to have litters of 8–12 pups. At ≥6 weeks of age, adult female and male weights were strain appropriate. The treatment of *NFκB-luc (Oslo)* mice with LPS or TNFα triggered an 8- and 4-fold luciferase induction in the whole body of males and females, respectively (Figure 1, page 1).

## Genotype

The transgenic line is hemizygous. The presence of the *NFκB-luc (Oslo)* transgene was determined from mice using PCR. The 1 kb PCR product from the sequence internal to the luciferase gene was amplified using forward primer:

(5'-TGGATTCTAAAACGGATTACCAGGG-3')

and reverse primer:

(5'-CCAAAACAACAACGGCGGC-3'),

both at 0.4 μM in the reaction mix. PCR conditions: 97°C 5:00 min; 94.5°C 0:40 min; 58°C 1:30 min; 72°C 1:30 min for 35 cycles; 72°C 10:00 min; hold at 4°C until analysis.

## References

1. Li Q, Verma IM. NF-kappa B regulation in the immune system. *Nat Rev Immunol.* 2002;2:975.
2. Carlsen H, Moskaug JO, Fromm SH, Blomhoff R. In vivo imaging of NF-kappa B activity. *J Immunol.* 2002;168:1441-1446.

LPTA® animal model lines contain a luciferase gene provided under a license from Promega Corporation. Under the terms of that license, 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.

In vivo imaging in mammals is covered by one or more U.S. and foreign patents controlled by Xenogen Corporation, including the following: U.S. patent numbers 6,649,143, 5,650,135, and 6,217,847, as well as European Union patent number 0861093. A license from Xenogen Corporation is required to practice under these patents.

## Contact Information

Please call 1.877.936.6436 or e-mail: [imaging@xenogen.com](mailto:imaging@xenogen.com)  
Xenogen Corporation, 860 Atlantic Avenue, Alameda, California 94501  
[www.xenogen.com](http://www.xenogen.com)