

# Luciferin and *In Vivo* Imaging

Luciferin is essential in performing your bioluminescent assay – and the quality of your research will depend on the quality of your luciferin. That's why Caliper Life Sciences, the world leader in the area of *in vivo* biophotonic imaging, now offers high quality Luciferin at an affordable price.

Luciferin is a chemical substance found in the cells of various bioluminescent organisms. When Luciferin is oxidized under the catalytic effects of luciferase and ATP, a bluish-green light is produced. Because the reaction is dependent on ATP, it allows researchers to determine the presence of energy or life. Firefly luciferin is a particularly good reporter for *in vivo* biophotonic imaging due to properties of its emission spectra.

Luciferin can be used in a number of ways. It can be used in a variety of *in vitro* assays, where the production of light can be monitored with either a luminometer or a scintillation counter. It can also be used to monitor light production *in vivo*, and can be monitored with a Caliper IVIS Imaging System. Because luciferin can penetrate cell membranes, it allows transformed cells to be monitored for luciferase activity.

There are many considerations when choosing a luciferin substrate such as dosing and toxicity. It is important to know that you are using the highest quality Luciferin for your experiments. You might want to ask:

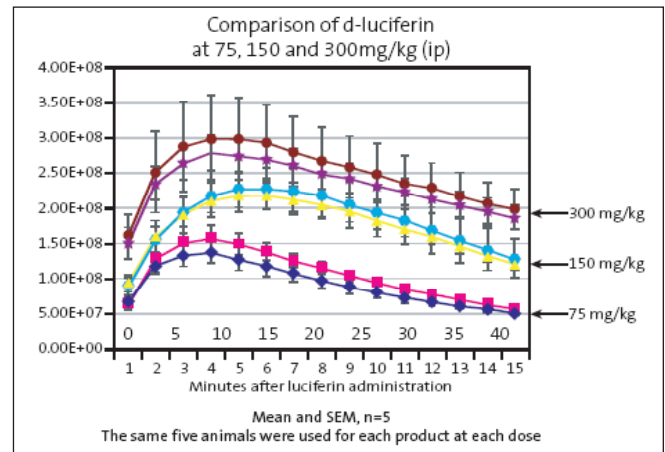
- Has your Luciferin been validated by Caliper scientists?
- Is your Luciferin used exclusively by Caliper physicists to calibrate IVIS Imaging Systems?
- Has your Luciferin been used in countless publications?

## Luciferin Toxicity

Luciferin is a low molecular weight organic compound that consists of a benzothiazole moiety attached to a thiazole carboxylic acid moiety. Luciferin is found in fireflies and other animals which, in the presence of ATP and the enzyme luciferase, becomes luminescent. The small size of luciferin also makes it a poor antigen and immune responses to luciferin are unlikely. Luciferin is able to pass the blood brain barrier, the blood placenta barrier and the blood testis barrier, toxicity appears low.

## Contact Information:

If you have any questions regarding these Caliper's Luciferin, please contact us at 508.497.6592 or e-mail: reagents@caliperLS.com



## Frequently Asked Questions

### How do you administer luciferin?

Mice with lux-bearing bacteria do not need luciferin to glow. In the tumor models and transgenic models, luciferin is administered intraperitoneally (concomitant with anesthesia).

### How well does luciferin distribute?

Luciferin distributes quickly and easily throughout the animal.

### How do the animals respond to the repeated administration of luciferin substrate?

Luciferin does not affect the animals deleteriously (no evidence of toxicological or immunological effects).

### Do you need to administer luciferin substrate to the animals before imaging?

In bacteria, the entire luciferase operon is stably integrated on the chromosome. This eliminates the need for exogenous luciferin substrate in the bacterial models. The tumor models and transgenic models rely on the exogenous administration of luciferin.