VivoGlo™ In Vivo Imaging Substrates

Highest Quality Substrates:
Eliminate potential interference in assays due to the presence of endotoxins.

Assured Product Integrity:
Most products are packaged in amber vials with septa to ensure product integrity as well as offer ease of dilution and use for imaging experiments. Product is packaged with fine tolerances to minimize the need to weigh substrates.

Flexibility and Convenience:
Available in multiple sizes, depending on the number of experiments to be performed.

XENOGEN
now part of Caliper Life Sciences

Caliper LifeSciences

VivoGlo™ In Vivo Imaging Substrates are provided in cooperation with Xenogen Corporation and Caliper Life Sciences for use in in vivo bioluminescence imaging applications.

VivoGlo™ Luciferin, In Vivo Grade

Luciferase genes from the North American firefly *(Photinus pyralis)* and from other beetles are commonly used as light-emitting reporters in cellular and animal models. VivoGlo™ Luciferin is the potassium salt of D-Luciferin, the firefly luciferase substrate capable of generating light when a suitable model is used.

An excellent review for using luciferin to image in animals has appeared (1). A more recent review discusses the use of various methodologies including bioluminescence imaging to follow cancer development and progression in animals (2). Although there is a wide range of dosing of luciferin, 2–3mg dissolved in 150–200µl of water or saline per mouse intraperitoneal is typical.

REFERENCES

1. Welsh, D.K. and Kay, S.A. (2005) *Curr. Opin. Biotechnol.* **16**, 73–8.
2. Kaijzel, E.L. et al. (2007) Clin. Cancer Res. 13, 3490–7.

VivoGlo™ Caspase-3/7 Substrate (Z-DEVD-aminoluciferin)

VivoGlo™ Caspase-3/7 Substrate (Z-DEVD-aminoluciferin) is a firefly luciferase prosubstrate protected by the caspase-3 and -7 peptide sequence. Upon activation of caspase-3 or -7, the DEVD-peptide is cleaved, and the liberated aminoluciferin will react with luciferase to generate measurable light. The cleavage has been shown in in cellulo (1) and in vivo (2) systems. For mice, activity has been demonstrated when 10mg of the substrate in 150µl of saline was injected intraperitoneal.

REFERENCES

1. Liu, J.J. *et al.* (2005) *Cancer Biol. Ther.* **4**, 885–92.
2. Shah, K. *et al.* (2005) *Mol. Ther.* **11**, 926–31.

VivoGlo™ Luciferin-β-Galactoside Substrate (6-O-β-galactopyranosyl-luciferin)

VivoGlo™ Luciferin-β-Galactoside Substrate (6-O-β-galactopyranosyl-luciferin) is a substrate for the commonly used enzyme β-galactosidase to form luciferin and β-galactose. This substrate has shown superior β-galactosidase activity determination in the Beta-Glo® Assay System. It has been used to image β-galactosidase activity when injected intraperitoneal into mice at approximately 2mg per mouse (dissolved in 100µl of PBS for a final dose of 0.1mmol/kg) (1).

REFERENCES

1. Wehrman, T.S. *et al.* (2006) *Nat. Meth.* **3**, 295–301.

EnduRen™ In Vivo *Renilla* Luciferase Substrate

EnduRen™ In Vivo *Renilla* Luciferase Substrate is a uniquely engineered coelenterazine h-based compound with protected oxidation sites. These modifications are designed to minimize substrate degradation and autoluminescence. It is reported that EnduRen™ Substrate may have a longer kinetic output, and a longer time to peak emission, both intraperitoneal and intravenous when compared to native coelenterazine when used in an in vivo imaging application in a mouse model (1). Stock solutions of the substrate can be made in DMSO or ethanol. In a published reference, EnduRen™ Substrate was diluted from a stock solution in PBS and 0.1% BSA to 0.295mM. Two hundred microliters of this solution was injected into the animal. The stability of EnduRen™ substrate has also been demonstrated in a fish tank to follow viral infection in live trout (2).

REFERENCES

1. Otto-Duessel, M. *et al.* (2006) *Mol. Imaging,* **5**, 57–64.

2. Harmache, A. et al. (2006) J. Virol. 80, 3655–9.

ViviRen™ In Vivo *Renilla* Luciferase Substrate

ViviRen™ In Vivo *Renilla* Luciferase Substrate is a uniquely engineered coelenterazine h-based compound with protected oxidation sites. These modifications are designed to minimize substrate degradation and autoluminescence. It has been reported that ViviRen™ Substrate demonstrates higher light output when compared to the native coelenterazine when used in a tumor-bearing mouse model (1), both for intraperitoneal and intravenous injections. Stock solutions of the substrate can be made in DMSO or ethanol. In the cited reference, ViviRen™ substrate was diluted in PBS and 0.1% BSA to 0.295mM. Two hundred microliters of this solution was injected into the animal. The enhanced brightness was especially useful for detection of small (< 1mm) tumors.

REFERENCES

1. Otto-Duessel, M. *et al.* (2006) *Mol. Imaging* **5**, 57–64.

Ordering Information

Product	Size	Cat.#
VivoGlo™ Luciferin, In Vivo Grade[a]	50mg	P1041
	250mg	P1042
	1g	P1043
VivoGlo™ Caspase-3/7 Substrate[a] (Z-DEVD-aminoluciferin)	50mg	P1051
	250mg	P1052
VivoGlo™ Luciferin-β-Galactoside Substrate[a] (6-O-β-galactopyranosyl-luciferin)	50mg	P1061
	250mg	P1062
EnduRen™ In Vivo *Renilla* Luciferase Substrate[a,b]	0.34mg	P1111
	3.4mg	P1112
ViviRen™ In Vivo *Renilla* Luciferase Substrate[a,b]	0.37mg	P1231
	3.7mg	P1232

[a]The use of this product and derivatives thereof is strictly limited to that of a life sciences research reagent. All other use is strictly prohibited, including but not limited to any diagnostic, therapeutic, or commercial use. The use of this product for in vivo bioluminescent imaging may be covered by one or more patents controlled by Caliper Life Sciences, Inc. Those patents include U.S. Pat. Nos. 5,650,135, 6,217,847, 6,923,951, 6,908,605, 6,890,515 and corresponding foreign patents and pending applications. **The purchase or transfer of this product is not intended, either expressly or by implication, to grant any right or license to practice under the foregoing patents. Purchasers are advised to contact Caliper Life Sciences, Inc., 68 Elm St., Hopkinton, MA 01748 for information regarding a license to practice under such patents.**

[b]This product does not convey a license to use recombinant *Renilla* luciferase under U.S. Pat. Nos. 5,292,658, 5,418,155 and related patents. Promega sells licensed *Renilla* luciferase vectors, which may be used in conjunction with this product.

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