TECHNICAL MANUAL

VivoGenie-Lux D-Luciferin In Vivo Salt

- **SKU CODES:** ASRV00018-10 / ASRV00018-100 /ASRV00018-1
- **SIZE:** 10mg / 100mg / 1g
- **DETECTION PRINCIPLE:** Luminescence
- **RUO:** Research-Use-Only

Revised: 11/2025

VivoGenie-Lux D-Luciferin In Vivo Salt

Please read entire manual carefully before starting experiment.

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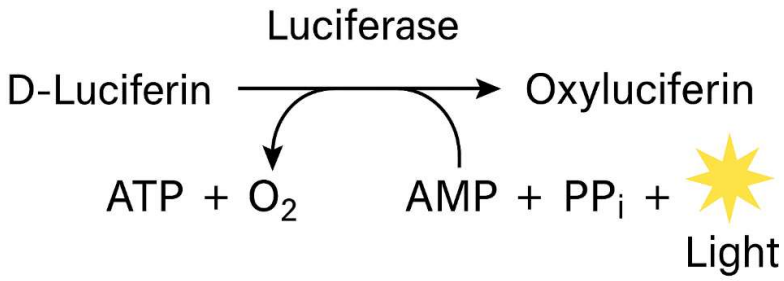
1. Product description

VivoGenie-Lux D-Luciferin In Vivo Salt is the high-purity substrate essential for bioluminescence imaging (BLI) assays in live organisms. This substrate, D-Luciferin Potassium Salt, is specifically formulated for in vivo applications, enabling the accurate reporting of luciferase reporter gene expression.

Mechanism of Action

In the presence of ATP, magnesium ions (Mg2+), and molecular oxygen (O2), the luciferase enzyme catalyzes the oxidation of the D-Luciferin In Vivo Salt substrate. This reaction results in the production of a strong, detectable bioluminescent signal.



The resulting luminescence intensity, detected using a small animal optical imaging system, directly reflects the level of luciferase expression within the living subject.

In Vivo Imaging Applications

VivoGenie-Lux D-Luciferin In Vivo Salt is critical for in vivo imaging experiments where cells or mRNA expression vectors encoding luciferase have been introduced into experimental animals. The substrate is subsequently injected, and changes in the optical signal are monitored.

The assay is highly versatile and applicable across numerous research fields, including:

- Tumor Research: Monitoring tumor growth and metastasis.
- Immunology and Stem Cell Research: Tracking cell migration and fate.

- Drug Studies: Assessing compound efficacy and pharmacodynamics.
- Molecular Analysis: Research on cell/protein/mRNA labeling and protein-protein interactions.

2. Kit Contents & Storage

Product	Code	Pack Size
VivoGenie-Lux D-Luciferin In Vivo Salt	ASRV00018-10	10mg
VivoGenie-Lux D-Luciferin In Vivo Salt	ASRV00018-100	100mg
VivoGenie-Lux D-Luciferin In Vivo Salt	ASRV00018-1	1gram

Store at -30 ~ -15°C and protect from light. Ship at ≤0°C.

Additional Equipment Required:

- DPBS (without Ca2+, Mg2+)
- ddH2O
- 1 ml Syringe
- 0.22 μm Filter Membrane
- Optical Imaging System for Plants or Animals

3. Protocol

Plant In Vivo Imaging Detection

1. **Stock Solution Preparation:** Dissolve VivoGenie-Lux D-Luciferin In Vivo Salt in sterile ddH2O to prepare a 30 mg/ml stock solution (~100X - 200X concentration). Mix thoroughly.
2. **Storage:** Use immediately or aliquot and store at -20 degrees C in the dark, strictly avoiding repeated freeze-thaw cycles.
3. **Working Solution:** Dilute the stock solution to a final working concentration of 0.3 mg/ml to 0.5 mg/ml using sterile ddH2O.
4. **Application and Detection:** Wet the underside of the leaves with the working solution. Let the plant stand in the dark at room temperature for 5 - 10 minutes before initiating detection.

Animal In Vivo Imaging Detection

1. **Stock Solution Preparation:** Prepare a 15 mg/ml luciferin stock solution in sterile DPBS (without Ca2+ and Mg2+ ions). Mix well.
2. **Sterilization and Storage:** Filter sterilize the solution using a 0.22 um filter membrane. Use immediately or aliquot and store at -20 degrees C in the dark, minimizing freeze-thaw cycles.
3. **Administration:** Administer the solution intraperitoneally (i.p.) at a final concentration of 150 mg/kg luciferin/body weight.
4. **Detection:** Perform imaging detection 10 - 15 minutes after injection (this is typically when the light signal reaches its strongest and most stable plateau).
5. **Optimization Note:** Before primary detection, it is highly recommended to conduct a pilot experiment to establish the in vivo luciferase kinetics curve to determine the optimal signal plateau and detection time.

Precautions, Safety and Handling

1. **Biosafety:** Always wear laboratory coats, masks, and gloves in accordance with standard biosafety regulations, and dispose of all experimental waste according to medical waste disposal requirements.
2. **Storage (Post-Opening):** This product must be stored sealed and protected from light. Once opened and dissolved, it is susceptible to oxidation. Aliquot and store the solution at -20℃ or -80℃ to minimize freeze-thaw cycles.
3. **Thawing:** Thaw the product on ice or at 4℃. Thawed D-Luciferin can be temporarily stored at 4℃or on ice
4. **Injection Preparation:** Filter sterilization is required before in vivo injection into small animals.
5. **Safety:** If the product accidentally splashes into the eyes, skin, or other body parts, rinse immediately with plenty of water.
6. **Contamination Control:** When preparing solutions for ATP detection, wear disposable gloves to strictly avoid interference from exogenous ATP.
7. **Dissolution Buffer:** Use DPBS without calcium (Ca^{2+}) and magnesium (Mg^{2+}) ions when dissolving the product, as these ions can interfere with the subsequent luminescence reaction.
8. **In Vivo Optimization:** Before performing primary in vivo imaging detection, it is highly recommended to conduct a pilot experiment to establish an in vivo luciferase kinetics curve to accurately determine the signal plateau and the optimal detection time post-injection.

4. Important notes

1. This kit is intended for Research Use Only. Assay Genie assumes no responsibility for any issues or legal liabilities arising from the use of this kit for clinical diagnostics or any other unauthorized purposes.
2. Please read the instructions carefully before beginning the assay. Ensure that all instruments are correctly calibrated. Strict adherence to the protocol is essential for accurate results.
3. Appropriate laboratory safety precautions must be followed, including the use of lab coats and latex gloves.
4. If the concentration of the target substance falls outside the detection range, please adjust the sample by performing further dilution or concentration as needed.
5. Experimental outcomes depend on multiple factors including reagent integrity, handling technique, and laboratory conditions. While Assay Genie guarantees the quality of our kits, we are not responsible for any loss of samples during use. We advise calculating sample requirements in advance and ensuring adequate sample volume is reserved before starting the assay.

Assay Genie 100% money-back guarantee!

If you are not satisfied with the quality of our products and our technical team cannot resolve your problem, we will give you 100% of your money back.