Preparation of Luciferin for In Vitro and In Vivo Bioluminescent Assays

Luciferin and Xenogen Imaging: The key to discovery at the speed of light.

Preparation of Luciferin for In Vitro Bioluminescent Assays

Materials

— D-Luciferin Firefly, potassium salt, 1.0 g /vial (Xenogen Catalog # XR-1001)

— Sterile water

— Complete media

Procedure

1. Prepare a 200X luciferin stock solution (30 mg/ml) in sterile water. Mix gently by inversion until luciferin is completely dissolved. Use immediately, or aliquot and freeze at -20°C for future use.

   * Note: One can either reconstitute the entire 1.0 g of D-Luciferin in 33.3 ml of sterile water to make the 30 mg/ml (200x) stock solution, or reconstitute the quantity of D-Luciferin necessary for an individual experiment.

2. Prepare a 150 μg/ml working solution of D-Luciferin in pre-warmed tissue culture medium.

   Quick thaw 200X stock solution of luciferin and dilute 1:200 in complete media (150 ug/ml final).

3. Aspirate media from cultured cells.

4. Add 1x luciferin solution to cells just prior to imaging.

   * Note: Incubating the cells for a short time at 37°C before imaging can increase the signal.

Preparation of Luciferin for In Vivo Bioluminescent Assays

Materials

— D-Luciferin, Firefly, potassium salt, 1.0 g/vial (Xenogen Catalog #XR-1001)

— DPBS, w/o Mg^{2+} and Ca^{2+}

— Syringe filter, 0.2 um

Procedure

1. Prepare a fresh stock solution of luciferin at 15mg/ml in DPBS. Filter sterilize through a 0.2 um filter.

2. Inject 10 μl/g of body weight. Each mouse should receive 150 mg luciferin/kg body weight. (e.g. For a 10 g mouse, inject 100 μl to deliver 1.5 mg of luciferin.)

3. Inject the luciferin intra-peritoneally (i.p.) 10-15 minutes before imaging*.

   * A luciferin kinetic study should be performed for each animal model to determine peak signal time.

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