

## Device Selection Guide

The purpose of this guide is to help you select the Penn-Century device that is best suited for your needs. Our patented aerosol devices are designed to administer either liquid formulations using a liquid syringe, or dry powder formulations using an air syringe.

**For best results, the part of the device that is inserted into the trachea must be the correct length for the experimental animal you plan to use.** It must be long enough so that the very tip of it is near to, but not touching the carina of the anesthetized animal.

**Penn-Century offers two models of liquid aerosol devices and two models of dry powder aerosol devices. The part that is inserted into the trachea can be ordered in a standard or custom length. We also offer accessories to help you use our devices. Depending on the goals of your study, you will need to consider the following to determine which Penn-Century device is right for you:**

- What experimental animal (mouse, rat, guinea pig or larger animals) or in-vitro lab set-up will you use?
- In larger animals: what is the measurement from the front incisor to the carina (first bifurcation)?
- What dose volume do you plan to administer?
- Particle size range desired?
- Characteristics of material to be administered (liquid, liquid suspension, dry powder, nanoparticle, bioactive or biologic material, viral or bacterial)?
- Does the part that is inserted into the trachea need to be flexible or can it be rigid?
- Will you insert the device into the trachea, directly, or pass it through an endotracheal tube or a bronchoscope?

We also offer Small Animal Laryngoscopes for use in specific animals and a Mouse Intubation Platform - which can be very helpful when using our devices.

**Please refer to the following pages to help you make your selection. For additional information, also see our Product Overview, and Products and Price List. Or contact us directly at: [info@penncentury.com](mailto:info@penncentury.com).**

**LIQUID**  
MicroSprayer®  
Aerosolizer  
Model IA-1B

**LIQUID**  
MicroSprayer®  
Aerosolizer  
Model IA-1C

**DRY POWDER**  
Dry Powder  
Insufflator  
Model DP-4

**DRY POWDER**  
Dry Powder  
Insufflator  
Model DP-4M

<b>MY TEST FORMULA IS A:</b>				
Liquid	●	●		
Liquid Solution or Particle Suspension	●	●		
Dry Powder			●	●
<b>I PLAN TO USE THE DEVICE IN:</b>				
Mouse		●		●
Rat	●	●	●	
Guinea Pig	●	● C	●	
Other (Rabbit, Pig, Dog, Sheep, Monkey, etc.)	● C	● C	● C	
Large animal via endotracheal tube/catheter	● C	● C	● C	
Large animal via a bronchoscope	● C	● C	● C	
<i>In vitro</i> , intranasal or custom lab set-up	● C	● C	● C	● C
<b>DOSE SIZE OPTIONS</b>				
Up to 250 µl (dose must be divisible by 25µl) ▣		●		
Up to 1 ml ▣	●			
1 to 2 mg			●	●
1 to 5 mg			●	
Up to 100 mg ◇			●	
<b>DEVICE OPERATES WITH</b>				
250 µl Penn-Century syringe - liquid		●		
.5 ml syringe (commercial) - liquid	●			
1 ml syringe (commercial) - liquid	●			
3 ml air syringe (commercial)			●	
Penn-Century Air Pump (adjustable 0 -5 ml)			●	●
<b>PENN-CENTURY DEVICE IS:</b>				
Re-usable	●	●	●	●
Sterilizable	●	●	● ∅	● ∅
Intratracheal portion straight or with 120° bend	●	●	●	●
Intratracheal portion made of flexible tubing		●	● ▶	

● Contact us at [info@penncentury.com](mailto:info@penncentury.com) regarding requirements for a custom length device

▣ Larger liquid dose volumes in larger animals can be administered by detaching and refilling syringe

◇ Large powder dose capacity is available for Model DP-4 only with 100mg Sample Chamber Extension

▶ Flexible plastic delivery tubes available for Model DP-4 only. (NOTE: Standard stainless steel delivery tube is rigid.)

∅ Dry methods of cleaning are preferred for Model DP-4 and DP-4M

**For precise intratracheal aerosol doses up to 1ml in Rat, Guinea Pig, or other animals or uses**



**MicroSprayer® Aerosolizer – Model IA-1B  
with 1ml polycarbonate syringe provided**



**MicroSprayer® Aerosolizer – Model IA-1B**

For intratracheal use in

- Rat (2" tip)
- Guinea Pig (3" tip)
- Any custom length



**1ml commercial polycarbonate syringe (B-SYR)** Provided free with MicroSprayer® Aerosolizer – Model IA-1B. Also operates with precision 0.5ml gas-tight glass syringe (sold separately.)

**For precise intratracheal aerosol doses of 25-µl to 250-µl in Mouse, Rat, or other animals or uses**



**MicroSprayer®/Syringe Assembly - MSA-250**

Also includes: five 25-µl and five 50-µl dosing stops to be attached to plunger for precise dosing, Air Purge Kit, and adapter to permit filling the syringe with a standard commercial dosing needle with luer hub.



**MicroSprayer® Aerosolizer – Model IA-1C**

For intratracheal use in

- Mouse (1.25" tip)
- Rat (2" tip)
- Any custom length



**FMJ-250 High Pressure Syringe**

Required for use with MicroSprayer® Aerosolizer – Model IA-1C. For delivery of doses from 25-µl up to 250-µl, (Dose must be divisible by 25-µl).

**FOR DRY POWDER AEROSOL ADMINISTRATION (AIR SYRINGE)**

**For precise intratracheal dry powder doses of 1 to 5mg in Rat, Guinea Pig, or other animals or uses**



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**Dry Powder Insufflator™ - Model DP-4  
with 3ml plastic air syringe provided**

**Dry Powder Insufflator™ - Model DP-4**

For intratracheal use in Rat (2" tip), Guinea Pig (3" tip), or other animals or uses. Operates with 3ml plastic commercial air syringe provided, or the Penn-Century Air Pump – Model AP-1.

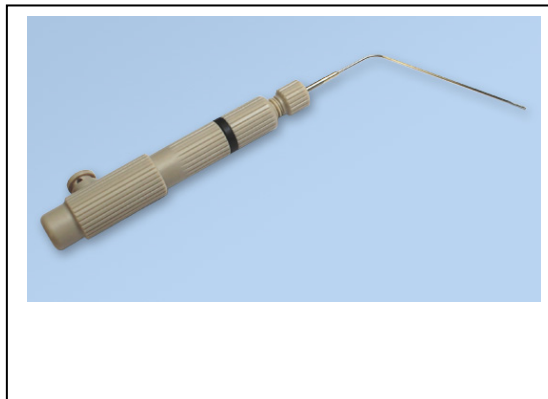
**3ml commercial plastic air syringe**

One provided free with Dry Powder Insufflator™ - Model DP-4. User may also purchase Penn-Century Air Pump – Model AP-1 to deliver air pulses of 0-5ml more rapidly, with less hand motion or force.

**For precise intratracheal dry powder doses of 1 to 2mg in Mouse only**



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**Dry Powder Insufflator™ Air Pump Assembly  
Model DPM-APA**

**Dry Powder Insufflator™ - Model DP-4M**

Must be operated with a Penn-Century Air Pump – Model AP-1

**Air Pump – Model AP-1**

For repeated air pulses of 200 microliters to mouse. Air volume setting is adjustable from 0 - 5 ml for use in larger animals with any Model DP-4. [Note: Discontinued Dec 2013. A new Model AP-2 is in development.]

**For better illumination to assist with intratracheal dosing**

Small Animal Laryngoscope  
Model LS-2

Designed to clearly illuminate the trachea and epiglottis for easier, faster intubation and insertion of a Penn-Century MicroSprayer® or Dry Powder Insufflator™. Now with a fiberoptic LED light source for clear, bright illumination. Each device comes with a custom-made small, tapered stainless steel blade for moving aside the animal's tongue. (Specify which animal when ordering). Easy-grip handle with curved ergonomic shape fits securely in the palm of the hand. Coated with non-slip Santoprene™ rubber. Operates with one 3-volt lithium battery (included). Sterilizable. Autoclavable.

**For easier intratracheal aerosol administration in Mouse only**

Mouse Intubation Platform  
Model AP-1

Specially designed to assist researchers working with Penn-Century intratracheal aerosol devices or intubation procedures in mice. The Mouse Intubation Platform provides a simple, durable, lightweight, easy-to-use system for supporting the anesthetized mouse during intubation and/or insertion of our aerosol delivery devices. Features: Solid Plexiglass®/Perspex® base and stainless steel support rod, easily attached to any standard lab clamp stand (*not included*). Special adjustable neck support with Delrin® fittings to facilitate visualization of the trachea.