Gas Anesthesia Setup for Methoxyflurane Use in Small Rodents

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We describe here a simple, inexpensive method for the administration of methoxyflurane (Metofane) inhalant to small rodents. This system can be safely used to provide a relatively rapid induction (1–5 minutes) of anesthesia.

A metal chamber is constructed to comfortably accommodate the animal to be anesthetized. The chamber contains a hard plastic lid that can slide open for introducing or retrieving the animal. The chamber has two male-type openings, one on either side (see Figure 1). The first opening (A), on the upper end of the chamber, is used for exhausting the anesthetic (kept closed during the induction period). The second (B), on the lower portion, functions as a gas inlet. A segment of Tygon tubing connects the gas inlet opening to a gas wash bottle (C). The opposite fitting of the wash bottle is connected to an Erlenmeyer flask (D) via Tygon tubing. The flask is partially filled with distilled water and fitted with a rubber stopper that bears two holes. The holes are used to hold two glass or metal hollow cylindrical rods. One shorter rod (E) fits into a hole and sits above the water line. This rod is connected to the inlet tube (D) of the gas wash bottle. The second rod (F) sits below the water level in the Erlenmeyer flask. It is connected to a pump so that the air coming in will be humidified. The anesthetic must be at least 1 inch above the fritted disk of the gas wash bottle. All tubing connections should be sealed to prevent any gas leakage. The system should be placed in a fume hood to ensure minimal gas leakage into room air.

The exhaust hole may also be used to supply anesthetic for a face mask or nose cone. Just attach a piece of tubing to the exhaust opening (A), and use that to cover the nose or face of the animal to be kept under anesthesia.

We have anesthetized rats, mice, and guinea pigs using this system and have had great success. The animals are inducted smoothly with no physical restraint required, and recovery is quick. Benefits to the scientist include less exposure to gas and ease of use.

Figure 1 Apparatus for administration of Methoxyflurane inhalant to small rodents.

The authors are employed by California Biotechnology, Inc., Mountain View, California.