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## The route less traveled

Many IACUCs discourage the use of the retro-orbital venous sinus as a site for intravenous injection in mice, though this method may provide certain advantages over the more popular lateral tail vein injection. Steel *et al.* compared these two routes of intravenous drug delivery in transgenic MAFIA mice. Using both techniques, the authors injected mice daily for 5 days with AP20187, an agent that selectively induces apoptosis in macrophages. They evaluated the efficacy of the two methods by comparing macrophage depletion in various mouse tissues. Lateral tail vein injection and retro-orbital venous sinus injection were similarly effective routes of drug delivery. A separate experiment with BALB/c mice indicated that retro-orbital venous sinus injection caused less stress to mice. [See page 26](#)

## Waiting to inhale

Inhalation exposure studies can enable investigators to assess the toxicity of inhaled compounds and to understand toxicity mechanisms. In these studies, animal test subjects are usually housed or restrained either in large whole-body chambers, which can require large quantities of test compound, or in nose- or head-only systems, which may cause stress or injury to animals. To address the potential shortcomings of traditional exposure systems, Wong *et al.* developed a system consisting of small single-animal whole-body chambers. They used the system to expose 80 mice and 80 rats to five test compounds at various concentrations. Though labor-intensive for technicians, the system effectively exposed animals to precise chemical doses without causing them adverse effects, using far less test compound than would have been required in a conventional whole-body chamber. [See page 33](#)

## A procedure for serial bleeding

Pharmacokinetic studies of orally administered drugs often involve measuring compound concentrations in the portal vein and in systemic circulation at various time points. Though the mouse is potentially a useful model for such studies, few techniques exist for serial bleeding in this animal. Shen *et al.* developed a portal vein cannulation procedure for serial blood collection in mice. They used a modified catheter containing a stainless steel stylet, which they implanted directly in the portal vein. To validate the technique, they orally administered two known compounds to mice, obtained blood samples from the tail vein and the portal vein at different time points and analyzed data using liquid chromatography/tandem mass spectrometry. The technique is more sensitive and consistent than traditional methods and requires fewer mice. [See page 41](#)