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Isn't It Ironic?

As this issue of Lab Animal goes to press, about 60 members of the FDNY are being temporarily relocated due to a persistent rat infestation at their firehouse in Queens, NY. Reports indicate that for the last year or so the firefighters have tried and failed to purge what have been described as "cat-sized" rats. When measures including setting traps and bringing in exterminators failed, the Fire Department shut down the firehouse, which will now be gutted and rebuilt in an effort to eliminate the unwanted visitors.

That being said, it seems almost ironic to introduce an issue that focuses on a different type of "rodent problem"—specifically, the challenges facing people who are trying to deal with the maintenance and expansion of colonies of rodents for biomedical research. Most people outside the laboratory animal care and use community probably can't fathom the time, effort, and money that goes into the development of new research models (primarily genetically engineered mice (GEM)), breeding and housing these various strains, providing them with medical care, training the personnel that care for them, and keeping records of all of these activities.

But anyone familiar with the inner workings of the modern-day laboratory animal facility appreciates the complexities involved. Beginning on p. 31, authors Garrett-Beal and Hoogstraten-Miller provide a behind-the-scenes look at the Transgenic Core at the National Human Genome Research Institute at the National Institutes of Health, which can be used as a template for setting up and managing a mutant mouse resource center at your own institution. They discuss the staffing of their facility and methods they use in the creation and maintenance of transgenic and knockout (both conventional and ENU-induced "loss-of-function") strains, and also address some of the commonly used "wild-type" background strains with which they work. They describe their cryopreservation program, as well as the process of rederivation of incoming lines using embryo transfer to prevent the introduction of pathogens.

While many city-dwellers continue to look for effective new ways to poison and eliminate rodents, those working in comparative medicine have come to understand the importance of carefully protecting the health of research rodents. Despite this understanding and the increasingly global nature of biomedical research involving GEM, there is still no international consensus on what agents are important to test for, screening methodologies, or frequency of testing. In an effort to quantify the problem, authors Martín-Caballero et al. (p. 38) analyzed 380 health reports that were sent with shipments of mice originating from various European and North American institutions. Their results highlight the lack of consistency in the information provided with shipments of mice, and point to the need for a standardized health form that would allow personnel at any receiving facility to objectively determine the quality of the incoming animals.

The need for protection remains just as keen once the animals are permanently housed at a given facility, and animal program directors are increasingly turning to the use of individually ventilated cage systems for housing mice. The high initial cost of these systems is generally outweighed by the benefits, which include reduced frequency of cage changes, improved air quality in the animal rooms, and decreased risk of disease spread between animals in individual cages. But with the implementation of an IVCS housing system comes the need to decide between various methods of ventilating the cages. Author Stakutis (p. 47) describes the pros and cons of the most common configurations, from using supply and exhaust fans to fully connecting the racks to the facility ventilation system.