

Jerald Silverman, DVM, Column Coordinator

Scientific justification for exemptions

Several studies have indicated that different stressors can affect research outcomes when using laboratory animals. David Fuller was of the opinion that euthanasia by carbon dioxide asphyxiation would be stressful to his mice because of the sound of the gas entering the euthanasia chamber, the potential for pain as the gas traversed the mucous membranes of the animal's nose and the possibly distressful sensation of hypoxia as the gas gradually displaced the air in the chamber. Carbon dioxide inhalation was the most common means of euthanasia used in the Great Eastern University animal facility; therefore, Fuller requested permission from the IACUC in his protocol to bring mice to his lab where they would be immediately euthanized by cervical dislocation, a technique with which he had many years of experience. Because the

IACUC also required scientific justification for any request to remove animals from the vivarium, even for a 'one way' trip, Fuller explained that his lab was in a far wing of the building, that it would take 10 minutes to bring tissues from the vivarium to the lab and that this delay between euthanasia and the enzyme extraction process that he planned to use was simply too long.

"Why don't you euthanize the mice in the animal facility by cervical dislocation, remove the tissues, put them in a Petri dish over ice, and then bring them to your lab?" asked Remy Snyder, the school's attending veterinarian, during her pre-review of Fuller's protocol.

Fuller responded, "These are very delicate neural tissues, and they have to be used when they are as fresh as possible. The 10-minute delay, even with ice, is not acceptable."

"But," queried Snyder in return, "even if you take the mouse to your lab, isn't the 10-minute transport just as much of a stressor on the animal as the carbon dioxide? And won't cervical dislocation affect the brain tissue?"

"Not in my experience," said Fuller. Snyder shook her head and returned the protocol to the IACUC office where, at her request, it was scheduled for full committee review.

Fuller did what the IACUC asked of him: he provided scientific justifications for bringing animals to his lab and for euthanizing them there by cervical dislocation. But are the justifications he provided sufficient for the IACUC to approve the request? Must the IACUC accept plausible scientific justifications even if the committee does not think they are fully adequate?

RESPONSE

Experience is not evidence

Darrell E. Hoskins, DVM, DACLAM

A number of questions must be addressed in order for the Great Eastern University IACUC to determine an appropriate course of action.

Is the opinion of Fuller that euthanasia by carbon dioxide asphyxiation would be stressful to his mice grounded in sound scientific evidence? This question, when disarticulated from the remainder of the issues, is not highly contentious. There are published scientific data indicating that asphyxiation by carbon dioxide can be stressful. It would not be hard for Fuller to find scientific data to support that opinion.

Is Fuller's belief that 10 minutes of transport time is simply too long sufficiently justified? Although Fuller's statement does reflect a common belief and practice in neurobiology research, the onus should

rest on Fuller to provide some supporting scientific data to that end.

Is Snyder's assertion that 10 minutes of transport time is just as much a stressor on the animal as carbon dioxide grounded in sound scientific evidence, and is it within her purview as the attending veterinarian and as an IACUC member to ask the question? Was Fuller's response adequate? Attending veterinarians are typically among the best-qualified individuals to explore and propose refinements. Snyder should remain steadfast in her efforts in that regard. As an IACUC member, Snyder is certainly allowed to pose any question necessary to ensure that she completely understand the ramifications of the research proposal. Therefore, she was acting appropriately when she asked her questions. However, she, too, has made an assertion that she has not substantiated with data. It would be advisable for her to do a literature search of her own regarding her assertion. Having said that, Fuller's response, "not in my experience," is not a sufficient scientific justification and also should be

backed up by documented scientific data. Both individuals have some homework to do.

Are the justifications Fuller provided sufficient for the IACUC to approve the request? Fuller's requests seem to be reasonable and to fall within the boundaries of common practice in neurobiology research. In its full-committee deliberations, the IACUC should consider whether Fuller's requested protocol would be more distressful to his mice than the standard practices it typically approves. If Fuller's lab personnel have the experience and documented qualifications to conduct cervical dislocation, there may be no substantial reason to deny his request. If the request is approved, the IACUC would need to be sure that Fuller's lab is added to the facilities inspected semi-annually. However, Fuller has not provided any scientific evidence to support his opinions and experiences.

Must the IACUC accept plausible scientific justifications even if the committee does not think they are adequate? No; it is incumbent upon the IACUC not to accept