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A report  
from the  
Pain & Distress  
Campaign of The  
Humane Society  
of the United States

## Policies & Perspectives

### NICEATM CALLS FOR IN VITRO TOXICITY DATA

Submissions of existing and future data on chemicals and products tested for both in vivo acute oral systemic toxicity and in vitro cytotoxicity—the latter using two standardized test method protocols that were published in a *Federal Register* notice on October 19, 2004—are invited by the National Toxicology Program Interagency Center for the Evaluation of Alternative Toxicological Methods (NICEATM). The two in vitro methods—recommended by the Interagency Coordinating Committee on the Validation of Alternative Methods (ICCVAM)—can reduce the number of animals used for assessing oral acute systemic toxicity. NICEATM will use the submissions to further evaluate the usefulness and limitations of in vitro data for estimating starting doses for in vivo studies. For additional information, including data submission instructions, visit <http://iccvam.niehs.nih.gov/methods/invitro.htm> and <http://iccvam.niehs.nih.gov/docs/FR/6961504.pdf>.

## Noteworthy

### IVAPM AT WORLD VETERINARY CONGRESS

Approximately 40 lectures and two wet labs will be sponsored by the International Veterinary Academy of Pain Management (IVAPM) at the 28th World

Veterinary Congress/American Veterinary Medical Association meeting on July 16–20, 2005, in Minneapolis, Minnesota. (Most of the IVAPM-sponsored tracks will be on July 16 and 17.) IVAPM will also hold its annual general meeting and abstract sessions. For information on submitting an abstract, contact [golderf@svm.vetmed.wisc.edu](mailto:golderf@svm.vetmed.wisc.edu). For meeting details, visit [www.wvc2005.org](http://www.wvc2005.org).

### HEALTH AND SAFETY LAB LAUNCHES PARTNERSHIP PROJECT

The British Health and Safety Laboratory (HSL) has launched a three-year joint industry project to develop software that rapidly generates physiologically based pharmacokinetic (PBPK) computer models. These models simulate the ways chemicals act in humans and other animals, predicting chemical toxicity and serving as alternatives to replace or reduce the numbers of animals used in testing. HSL's new "proof of concept" software allows PBPK models to be constructed in just a few minutes—rather than days—substantially reducing toxicology testing costs. This project is funded by government and commercial sponsors and endorsed by the Fund for the Replacement of Animals in Medical Experiments (FRAME). For more information, go to [www.hsl.gov.uk/capabilities/pbpbk-jip.htm](http://www.hsl.gov.uk/capabilities/pbpbk-jip.htm).

*continues on page 2*

## **ANIMAL PROTECTION PRIZE AWARDED**

In November 2004, the German Research Foundation (DFG) awarded its inaugural Ursula M. Händel Animal Protection Prize, which promotes animal protection in research. Cash prizes of US\$16,200 were awarded to Klaus Otto for his work to find a more accurate way to calculate the effectiveness of anesthesia by measuring brain activity with an electroencephalogram, and Lisa Wiesmüller, who developed a nonanimal alternative test using human cell cultures to detect potential carcinogenic effects or genetic damage from medicines and food additives. For more information, go to [www.dfg.de/en](http://www.dfg.de/en).

## **Resources & Services**

### **CAAT CALLS FOR GRANT PROPOSALS**

The Johns Hopkins Center for Alternatives to Animal Testing is calling for grant proposals for 2006–2007 in three areas: refinement, developmental toxicity, and immunotoxicity. Refinement studies (\$25,000 per year maximum) must focus on pain assessment, alleviation, elimination, and/or prevention in laboratory animals. Developmental toxicology studies (\$50,000 per year maximum), including those

for developmental neurotoxicology, cannot involve whole-animal mammalian studies, but can be in vitro or involve embryonic stem cells or species such as *Caenorhabditis elegans* or zebrafish. Immunotoxicology studies (\$50,000 per year maximum) should focus on basic mechanisms as they relate to toxicity. The deadline for submitting proposals is March 31, 2005. For additional information, visit <http://caat.jhsph.edu/programs/grants/preproposal.htm>.

### **SERUM-FREE MEDIA**

Extracting fetal bovine serum (FBS) from fetal calves can cause pain and distress. In a report based on a workshop held in April 2003, van der Valk et al. (2004, *Toxicology in Vitro*, 18(1): 1–12) address replacing FBS with in vitro cultures. The authors note several scientific and safety problems associated with FBS use, including its variable composition. They argue that scientists should avoid using FBS and use a fully defined medium instead. When such serum-free media is inappropriate or unavailable, scientists should purchase FBS only from producers who clearly state that the serum was obtained using the more humane protocol outlined in the report, which ensures the calf is unconscious and not experiencing pain or distress at the time of collection. Additionally, the authors recommend that a public database be created

with information on serum-free media composition, cell types, culture systems, and links to users for future reference. Focus on Alternatives has compiled a list of sources of serum-free media and information on the animal pain and distress involved in FBS collection at [www.focusonalternatives.org.uk](http://www.focusonalternatives.org.uk).

### **SEEKING NOMINATIONS FOR 2005 RUSSELL AND BURCH AWARD**

The Humane Society of the United States (HSUS) is seeking nominations for the triennial Russell and Burch Award, which recognizes outstanding scientific contributions toward the advancement of alternative methods in the areas of biomedical research, testing, or higher education. The \$5,000 prize will be awarded in August 2005 at the Fifth World Congress on Alternatives and Animal Use in the Life Sciences in Berlin, Germany (see [www.worldcongress.net](http://www.worldcongress.net)). Candidates are judged on the scientific merit of their contribution to the alternatives field and their professional commitment to that field.

To nominate yourself, submit a cover letter explaining your suitability for the award, curriculum vitae, and representative published articles. Persons nominating others should submit a letter explaining the nominee's suitability for the award along with supporting documentation. The deadline for nominations is May 16, 2005.

## **Upcoming Conferences**

### **Current Animal Welfare Issues and ARVO (Association for Research in Vision and Ophthalmology) Member Research**

- ▶ Sponsored by the Scientists Center for Animal Welfare
- ▶ May 1–5, 2005
- ▶ Ft. Lauderdale, Florida
- ▶ For more information, go to [www.scaaw.com](http://www.scaaw.com)

### **Alternatives in the Mainstream: Innovations in Life Science Education and Training**

- ▶ Sponsored by the International Network for Humane Education (InterNICHE)
- ▶ May 12–15, 2005
- ▶ Oslo, Norway
- ▶ For more information, go to [www.interniche.org](http://www.interniche.org)

### **International Conference on Environmental Enrichment**

- ▶ Sponsored by the Wildlife Conservation Society
- ▶ July 31–August 5, 2005
- ▶ New York, New York
- ▶ For more information, go to [http://wcs.org/sw-wcs\\_in\\_new\\_york/icee2005](http://wcs.org/sw-wcs_in_new_york/icee2005)

### **Fifth World Congress on Alternatives and Animal Use in the Life Sciences**

- ▶ Sponsored by the Alternatives Congress Trust
- ▶ August 21–25, 2005
- ▶ Berlin, Germany
- ▶ For more information, go to [www.worldcongress.net](http://www.worldcongress.net)

Applications should be sent to: Russell and Burch Award, Animal Research Issues, The HSUS, 2100 L Street, NW, Washington, DC 20037, U.S.A. For more information, call 301-258-3041, fax 301-258-7760, or e-mail ari@hsus.org.

## From the Technical Literature

### EVIDENCE THAT LABORATORY ROUTINES CAUSE ANIMAL STRESS

Balcombe et al. (2004, *Contemporary Topics in Laboratory Animal Science*, 43(6): 42–51) examined and summarized 80 published studies on routine laboratory procedures—including handling, blood collection, and orogastric gavage. The selected studies involved quantitative or behavioral measures of pain or stress during these routine procedures. Handling was defined as noninvasive manipulation for normal husbandry routines, such as lifting animals or moving their cages. Significant changes in behavior and physiological parameters correlated with stress—such as heart rate, blood pressure, glucose, prolactin, and corticosterone—in all three procedures in multiple species, with changes from baseline ranging from 20–100% and lasting 30 minutes or longer. Physiological response did vary with intensity of handling stressors. Detailed findings associated with each of the procedures are provided. The authors concluded that laboratory routines are associated with “quantified and substantial” stress and that animals do not habituate to these procedures. The authors stated that “[t]hese data suggest that significant fear, stress, and possibly distress are predictable consequences of routine laboratory procedures, and that these phenomena have substantial scientific and humane implications for the use of animals in laboratory research.”

### BARBERING IN MICE EXAMINED

Various aspects of barbering—the painful plucking of fur and whiskers from cagemates or oneself—were examined in laboratory mice by Garner et al. (2004, *Applied Animal Behaviour Science*, 89(3/4): 263–282) in a series of three experiments, one of which was an epidemiological study. Mice in steel cages were 1.82 times more likely to barber than mice in plastic cages, and those housed entirely with siblings were 3.66 times more likely to barber than mice housed entirely with nonsiblings. Barbering severity significantly increased with increased cage height from the floor. Patterns of barbering were more similar between cagemates than between noncagemates, indicating that barbering may be socially transmitted. Dominance does not appear to influence barbering. Recommendations on how to reduce barbering include housing mice in clear plastic cages and in mixed-relatedness groups and minimizing the age to which mice are housed in the natal group because of their natural behavior to disperse from the natal group after puberty. The authors emphasized that it is much easier to prevent barbering behavior through husbandry improvements than to try to cure it. Finally, barbering is an abnormal behavior with “serious consequences for welfare, and for research quality” for those who barber, are barbered, or live in a population where barbering occurs.

### MICE: MOTIVATION FOR BURROWING

A study by Sherwin et al. (2004, *Applied Animal Behaviour Science*, 88(3/4): 343–358) examined whether mice burrow for the satisfaction of performing the activity or strictly for functional purposes, such as achieving shelter. Female mice had access to one burrowing compartment during phase 1, a second burrowing

compartment during phase 2, and to both compartments (one of which was destroyed) during phase 3. There were no differences in time spent burrowing during the three phases and no overall preference for either the destroyed or undestroyed compartment in phase 3. The number of burrowing bouts increased throughout the experiment, and the mice built burrows despite no obvious incentive, such as predators, climate, or food. The combined findings suggest that burrowing is a behavioral need. In the same study, Sherwin et al. studied the strength of motivation that mice have for burrowing. Despite increased costs of gaining access to a burrowing cage (number of times a switch had to be pressed), the mice continued to work to gain access. The trained mice had to move away from a start cage containing conspecifics, food, and water, suggesting that the visits were not for essential resources or social contact, and that the mice were highly motivated by the presence of burrowing substrate. The authors recommend that to avoid compromising welfare, animals should be allowed to perform a “natural” range of behaviors, such as burrowing.

## Statistics on Animal Use Pain & Distress

### 2002 U.S. ANIMAL USE STATISTICS

The U.S. Department of Agriculture (USDA) 2002 Animal Welfare Report summarizes the numbers of registered research facilities and animal dealers, the number of inspections performed at regulated facilities, and the numbers and types of animals used in research and the corresponding pain and distress categories. The total number of USDA-regulated animals used in research

*continues on page 4*

## Pain & Distress Report

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## Statistics on Animal Use Pain & Distress

decreased slightly from 1,241,581 in 2001 to 1,137,718 in 2002. Rabbits, guinea pigs, and hamsters were the species most often used in research, followed by pigs, dogs, primates, sheep, and others. Animals used in research involving unalleviated pain and/or distress ("Column E" experiments) accounted for 9.1% of all animals, a slight increase from 8.5% in 2001. Animals used in research involving pain and/or distress but who were anesthetized and/or treated with analgesics or tranquilizing drugs ("Column D" experiments) accounted for 34.1% of all animals. Animals used in research that was not classified as painful or distressful ("Column C" experiments)

accounted for 56.9% of the total number. To learn more, visit [www.aphis.usda.gov/ac/publications.html](http://www.aphis.usda.gov/ac/publications.html).

## Attitudes & Public Opinion

### PAIN ASSESSMENT: ATTITUDES OF FRENCH VETERINARIANS

Hugonard et al. (2004, *Veterinary Anaesthesia and Analgesia*, 31(3): 154–163) examined attitudes of French veterinarians regarding pain assessment and use of analgesics in dogs and cats. Of 189 small animal practice veterinarians,

99.5% expressed moderate to extreme concern over pain in their animal patients. Only 14.3% considered their knowledge of pain recognition to be inadequate, but 58.8% considered their methods of pain quantification and control to be inadequate. The main reasons for inadequate provision of analgesia were lack of knowledge regarding appropriate use of analgesics, fear of side effects, and, paradoxically, difficulties in recognizing pain. Nonsteroidal anti-inflammatory drugs and glucocorticoids were the most commonly used analgesics reported, but these are widely considered suitable for controlling weak to moderate pain only. French veterinarians used opioids less than veterinarians in English-speaking countries (partly because of narcotics legislation in France), but use of opioids in dogs increased if the veterinarians attended continuing education courses. Female veterinarians were significantly more likely to evaluate pain and provide analgesics, and those who were more likely to use analgesics ranked pain for various conditions higher than those who use analgesics less frequently. Finally, younger veterinarians were more satisfied than older ones with the pain management training they received in veterinary school.

### Recent Publications

Bogdanov, A. I., & Yarushkina, N. I. (2004). The role of adrenocorticotrophic hormone in the inhibition of pain reactions in conscious rats. *Neuroscience and Behavioral Physiology*, 34(6): 575–578.

Lascelles, B. D., & Robertson, S. A. (2004). Use of thermal threshold response to evaluate the antinociceptive effects of butorphanol in cats. *American Journal of Veterinary Research*, 65(8): 1085–1089.

Pinto-Ribeiro, F., Ameida, A., Pêgo, J. M., Cerqueira, J., & Sousa, N. (2004). Chronic unpredictable stress inhibits nociception in male rats. *Neuroscience Letters*, 359(1–2): 73–76.

Schofield, J., & Williams, V. (2004). Recent advances in anaesthesia in guinea pigs. *ANZCCART News*, 17(3): 7–8. [www.adelaide.edu.au/ANZCCART](http://www.adelaide.edu.au/ANZCCART).

## Pain & Distress Report

The *Pain & Distress Report* provides laboratory animal veterinarians, technicians, oversight committees, and others with up-to-date information on issues regarding pain and distress in laboratory animals.

E-mail [ari@hsus.org](mailto:ari@hsus.org) for a free subscription to the electronic version of the newsletter; copies are also available online at [www.hsus.org/ace/11401](http://www.hsus.org/ace/11401).

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