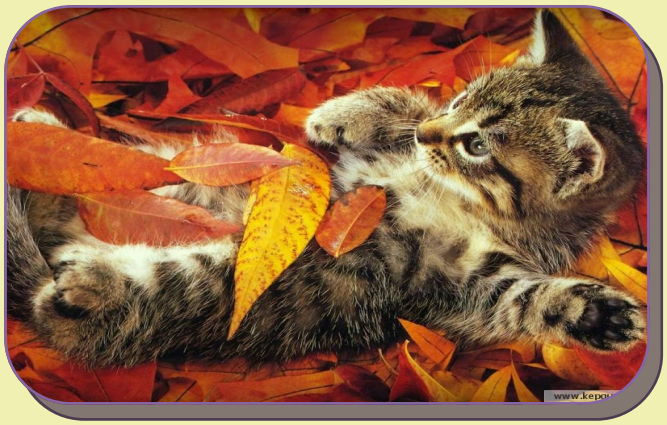
SEAALAS

NEWSLETTER

FALL 2016



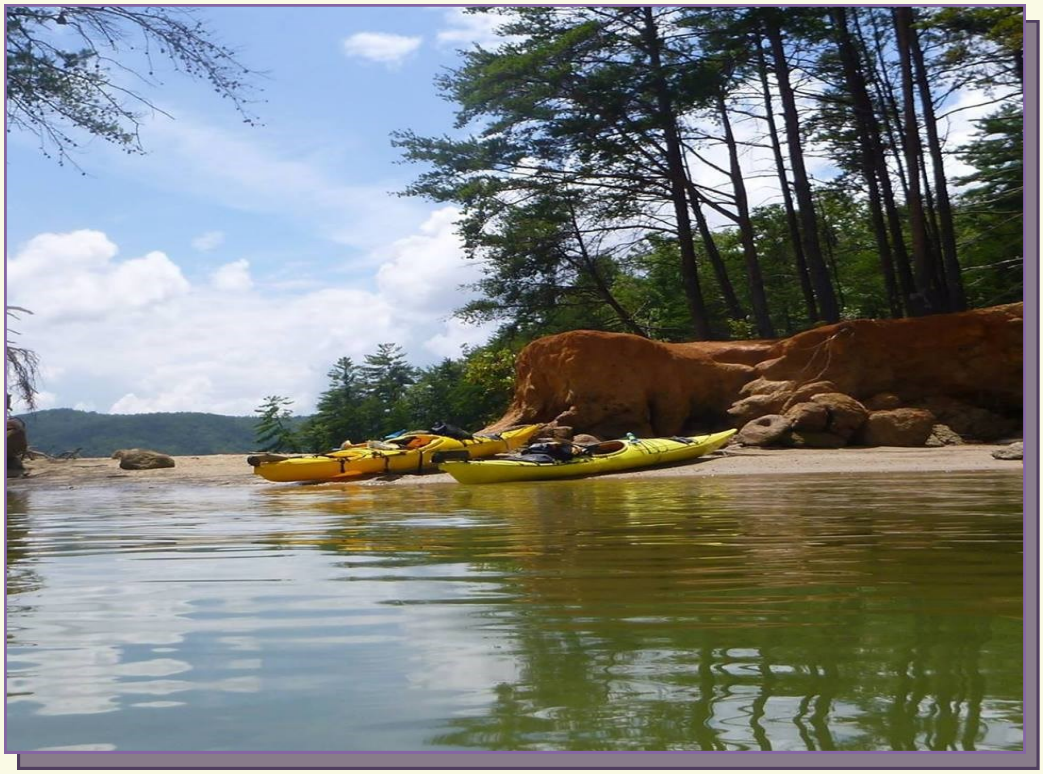
INSIDE THIS ISSUE:

We are an association of professionals that advances responsible laboratory animal care and use to benefit people and animals.

Letter From the Editor

Just a few days ago, I celebrated 10 years working at the Medical University of South Carolina. With all the innovations that have occurred in the lab animal field during that time, it makes me excited for what the future holds. I am especially proud of how our community has used scientific research to come up with ways to make the animals in our care more comfortable. As a vet tech, there is nothing that makes me happier than to see healthy, happy animals in my care. A close second is witnessing scientific achievements that have helped to solve problems that have plagued humankind for decades. I remember when I was young how HIV was a death sentence. Now, with treatment, HIV does not turn into full-blown AIDs and people can live relatively normal lives. Parents with HIV can even have children who are disease-free. Researchers are currently working to come up with a vaccine. This is just one example of the life-changing research being performed on our precious lab animals every day. I work hard to try and live up to the sacrifices they make.

Lindsay Olin, LVT, LATG



Lake Jocassee, Devil's Fork State Park, Salem, SC

Letter from the President

Happy Fall, y'all! I am so excited for the cooler weather that fall brings.

There has been a great deal going on behind the scenes with the Board of Directors and Committee Chairs for the past few months. The new on-line Nominations and Elections have closed. The new Board of Directors for 2017 will be announced later in the issue.

Awards nominations have been submitted and we will await the committee's decision for this year's winners. Best of luck to all that have been nominated!

The Annual Meeting will be combined with District 4 Members for a wonderful educational experience.

I hope everyone had a good time at the National AALAS Meeting. It was great to see some of you!

Until next time....

Deidre Wright

2016 SEAALAS Board of Directors

Director: Karen Leiber, Emory University

Director: Mark Sharpless, Yerkes National Primate Research Center

Director: Karen Strait, Emory University

Director: Lisa Wilson, University of Georgia

President: Deidre Wright, Medical University of South Carolina

President-Elect: Rebecca Gregory, Medical University of South Carolina

Secretary: Sarah Cantrell, Medical University of South Carolina

Treasurer: Colleen Oliver, VA- Atlanta

<u>Committee Chairs:</u>

Commercial Representative: Johnny Wilson, Veltek Associates, Inc.

Commercial Representative: Shonter Thornton, Medline, Inc.

Communications: Lindsay Olin, Medical University of South Carolina

Legislation: Roxanna Swagel Medical University of South Carolina

Nominations and Elections: Loni Carter, Medical University of South Carolina

2017 Annual Meeting Program: Michelle Hull, Emory University

2017 Annual Meeting Program: Amy Dryman, Emory University

Technician Branch Representative: Amy Dryman, Emory University

Awards: Travis Pruitt, Clemson University

2016 Election Results are in…

And the winners are…

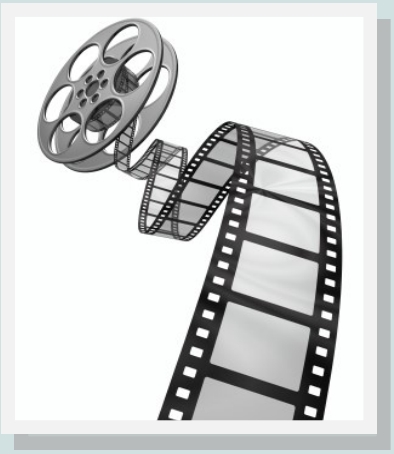
President-Elect: Johnny Wilson

Secretary: Sherrie Jean

Treasurer: Colleen Oliver

Director: Marsha Howard

Director: Robbie Champion

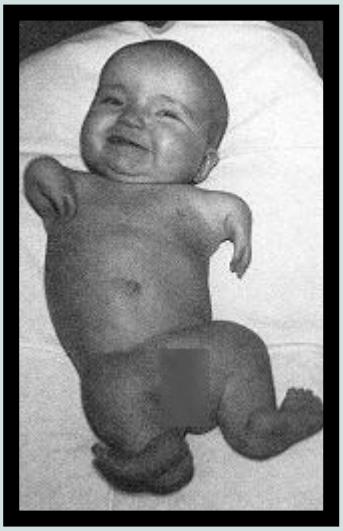


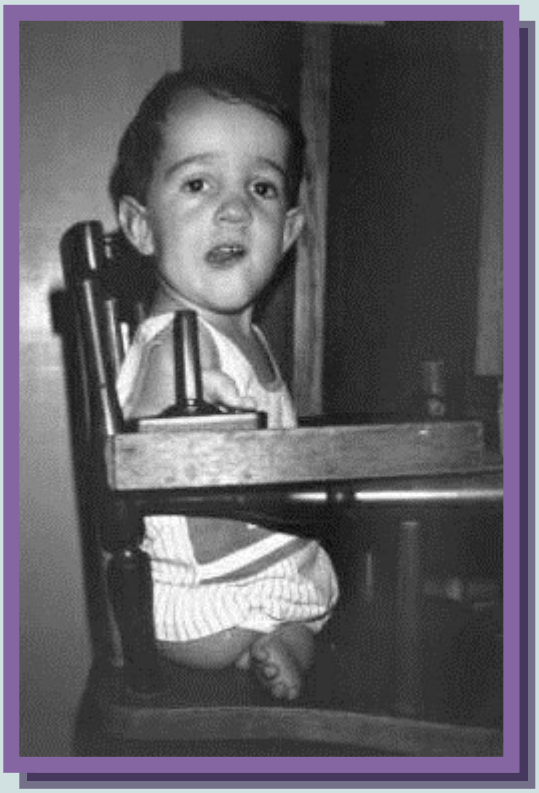
FILM RECOMMENDATIONS

Attacking the Devil: Harold Evans and the Last Nazi War Crime

This documentary film recounts the struggle a British newspaper faced in order to get adequate compensation for the victims of the drug thalidomide. Thalidomide was marketed as a sedative and antiemetic in 46 countries in the mid-1950's. It was promoted as a cure to morning sickness and in some countries it could be purchased over the counter. Shortly after its release, thousands of babies were born with malformed or missing limbs, and many of them died shortly after birth. The cause was found to be thalidomide, but the drug was not taken off the market until November, 1961. The United States Federal Drug Administration never approved the application to market the drug. Dr. Frances Oldham Kelsey was in charge of reviewing the drug and was given the President's Award for Distinguished Federal Civilian Service for her role in preventing the drug from being sold in the U.S, despite immense pressure to do so.

The affected children that survived would often need life-long care, which many families were unable to afford. Harold Evans and the Sunday Times fought for years on behalf of those families. In 1973, 440 children were awarded 40% of the legal valuation of his/her disabilities. In exchange, they had to withdraw any claims of negligence against the drug manufacturer. To this day, the British government has not issued an apology to their citizens for their part in the tragedy.

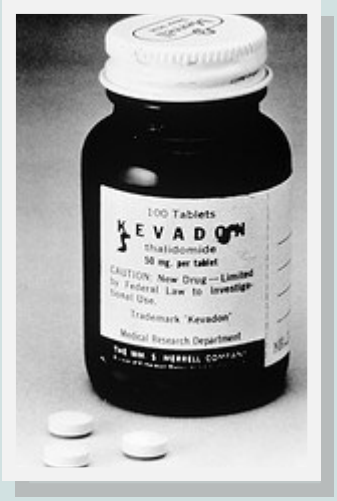




This catastrophe directly led to the passage of the Kefauver-Harris Amendments by the United States Congress in 1962. It stated that pharmaceutical companies must prove both the effectiveness and safety of a product through well-controlled studies before being approved for marketing. These laws became the worldwide standard. Their passing also signified a shift in the public's perception of the role of the federal government. After this, citizens expected the government to protect them from harm.

New evidence suggests that thalidomide was actually discovered in the 1940's and that it was one of the drugs tested by the Nazi's on people in concentration camps. It is believed that it was given to pregnant women and that the teratogenic effects were well-known. The chemist in charge of research at the German company that developed thalidomide was a known Nazi who is believed to have worked at Auschwitz. Unfortunately, many of the records from the Nazi's were destroyed, so we may never know the full story.

*This movie can be streamed online with a Netflix subscrption



*For more information on the history of the FDA, visit:

http://www.fda.gov/AboutFDA/WhatWeDo/History/ProductRegulation/PromotingSafeandEffectiveDrugsfor100Years/

Mary and Martha

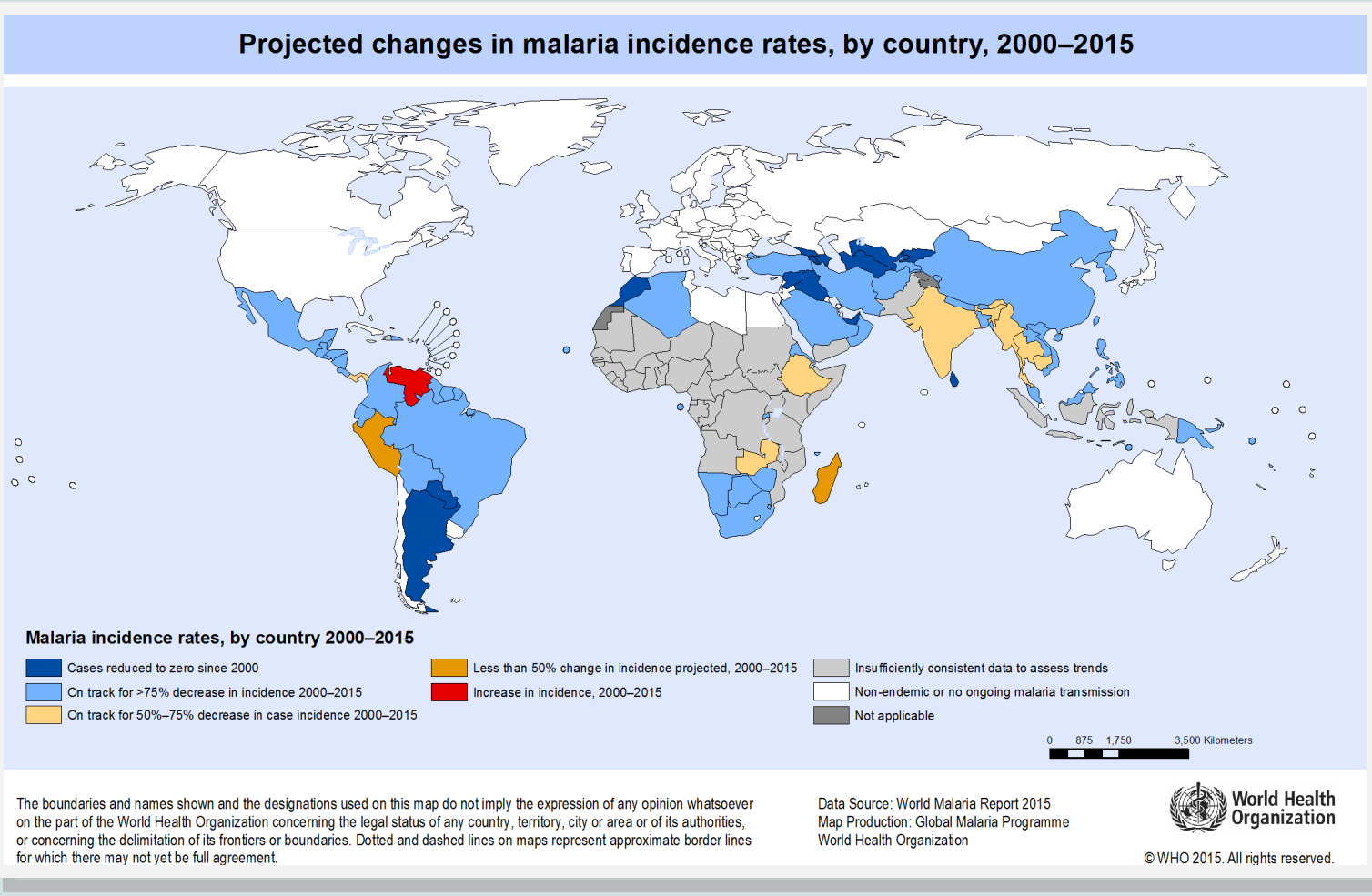
This fictional movie tells the story of two mothers who are grieving the loss of their sons to malaria. Both boys contracted malaria after being bitten by mosquitoes, while visiting Africa. Unfortunately, like many of those infected, they thought they had the flu. By the time the symptoms progressed, it was too late for treatment to be effective. Mary was told that her son did not need to take the prophylactic drugs available to prevent infection because they were travelling during winter. Martha's son did not finish the full course of prescribed medications, leaving him vulnerable to infection.

After returning home, the pair discovered that their sons were just two of millions that are infected annually. In 2015, there were 214 million cases of malaria and 438,000 people died. 70% of those that died were under the age of five, as the disease hits those hardest with weakened or developing immune systems. 88% of malaria cases and 90% of malaria deaths occur in sub-Saharan Africa. The tropical environment is an ideal breeding ground for mosquitoes.

Vector control has been shown to be very effective in preventing malaria transmission. Between 2000 and 2015, malaria incidence by populations at risk fell by 37%. The World Health Organization recommends using insecticide-treated mosquito nets at night and spraying indoors. In recent years, many insects have developed resistance to pyrethroids and other insecticides. There has also been an increasing number of cases of multi-drug resistance to the antimalarial medicines used to prevent the disease. These circumstances, together with the fact that many Africans do not have access to health care, has made the fight against malaria extremely difficult.

In January, 3 years after this movie came out, the World Health Organization recommended a large-scale pilot study of a malaria vaccine called RTS,S (Mosquirix). The European Medicines Agency also gave a positive scientific opinion on the vaccine after the results of the phase 3 trials were published. GlaxoSmith Kline has been developing this vaccine since the 1980's. They have collaborated with the Walter Reed Army Institute of Research and more recently the PATH Malaria Vaccine Initiative. They have received a large grant from the Bill and Melinda Gates Foundation. Gavi, an international vaccine alliance, has pledged up to $27.5 million to support the pilot study, as long as other organizations come forward to match their donation. Hopefully, the funding will be secured so that phase 4 trials can begin, bringing us a step closer to eliminating this devastating disease.

*This movie can be streamed online for free with an Amazon Prime membership



*For more information on the global fight against malaria, visit:

www.who.int/malaria/en/

Introducing NexGen Rat 1800

A World of Value Inside.

A Room with a View

The forward portion of the 1800 cage, and also its corresponding wire bar lid, allow for a clear and unobstructed view both into and out of the cage! This provides researchers with an improved ability to perform quick and effective health checks, while - in equally important fashion - provides rats with a vantage point into what is occurring outside of the cage and within the room beyond; a key health and enrichment factor in the overall well-being of the animals.

A Step in the Right Direction

Variety within their environment, as well as the animals' ability to have a degree of control over it, is also a key factor in the well-being of research animals. The 1800 can accommodatean optional platform in the front of the cage that allows rats to engage in important enrichment activities such as climbing and exploration.

Time to Make a Stand

The Guide for the Care and Use of Laboratory Animals, as well as other generally-accepted global standards, mandates that research animals should be able to engage in normal postures and activities. For rats, the ability to comfortably obtain a bi-pedal stance is something that has been shown to be beneficial to their overall well-being. The 1800 is a much larger and taller cage with a floor to ceiling height of 10" / 25,4cm, allowing rats to easily achieve this bi-pedal posture.

Allentown Register for a free webinar on the NexGen Rat 1800 at www.AllentownInc.com/rat1800

NEXGEN RAT1800

The *Care* and *Feeding* of Laboratory Animal Personnel

Grow a culture of learning in your workplace.

By Lisa K. Secrest, CMAR, RLATG

In the laboratory animal science industry, jobs can be demanding. Our employees can encounter a large amount of stress as they juggle the many aspects of maintaining a well-functioning facility, responding not only to the needs of their supervisory chain, but also to the demands of the scientific staff at their institution. Good science dictates an almost factory-like precision on how our staff accomplishes their tasks. More importantly, the animals in our care deserve our attention to detail in providing them the highest-quality of care with compassion and gentleness. The challenge is to keep our employees engaged and productive when performing complex, meticulous, and many times repetitive chores.

The urge is to throw in some extra perks to keep the workforce content, but workplace surveys often prove that money is not the most important factor when considering a job offer or deciding to stay with a company once employed. Of course, no one would expect an employee to turn down a bonus or raise if offered, but the most frequent response to the question about workplace motivation is the simple longing to be involved in meaningful work and to feel that what they do matters. To better understand the motivations behind an empowered workforce and how employers can best act and react to worker expectations, Kelly Services® developed an annual global survey that collected feedback from 164,000 workers worldwide from multiple industries. This survey found a broad range of career development elements that are key drivers for determining job satisfaction:

- Opportunity for advancement (73%)
- Training/development programs (66%)
- Opportunity to work with knowledgeable colleagues from which they can learn (56%)
- Leadership development (45%)
- Exposure to latest technologies and equipment (37%)

Training and development is rated high in this and other surveys about employee engagement. Our industry mandates that personnel involved

with the care and use of animals be adequately educated and trained to help ensure high-quality science and animal well-being. One of the more important prerequisites to providing excellence in animal husbandry services is the comprehensive training of employees. Even well-educated and experienced managers, scientists, and technicians require continuous training to maintain technical competence and consistency. Our organizational challenge should be to create a work environment with a culture of learning knowing that the overall goal is to increase each employee's knowledge of project activities and provide a common understanding of all services necessary to successfully meet animal and facility requirements.

Developing a Learning Culture

When good training and development opportunities are offered, employees stay engaged. Employers need to add continuing education to the top of their priority list. Monies are tight and institutions may be tempted to slash training budgets, but this short-term view can produce dire consequences. Organizations that neglect training or just squeeze in classes or seminar opportunities during their slow periods will struggle with employees who cannot effectively do their jobs. This will lead to frustration, low productivity, mistakes, low morale, and high turnover rates. Training increases efficiency and productivity and keeps staff up to speed with new protocols, practices, and technology. This is especially important in the lab animal science industry when simple mistakes can lead to a ruined study, harm to the animals in our care, or injury to our staff. Fostering learning in the workplace creates a win-win situation for the institution, the workforce, and the animals. Every organization has a learning culture. We absorb information, determine what's important, and decide how to act. Who is directing these learning experiences? Is it the boss, the trainer, or an influential team member? Is your learning culture making your organization successful or does it breed stagnation?

Creating a culture of learning is beneficial. Employee engagement goes up, directly impacting productivity and staff retention, according to studies by Gallop. In his book *Drive: The Surprising Truth About What Motivates Us*, Dan Pink explains that humans are most motivated by autonomy, mastery, and meaningful purpose. Learning contributes to all three. Sounds great, but how do we create a meaningful learning culture in our facilities?

Changing how your staff perceives and acts requires changes in three areas:

- Psychological: A change in understanding, knowing the why.
- Behavioral: A change in action, doing something differently.
- Convictional: A revision of belief system or shifting of perspective.

Author and University of Virginia professor Edward Hess explained in the May 2015 issue of *HR Magazine* that a learning culture begins by recognizing the key constraints that prevent people from reaching their full potential as learners. He advocates developing policies and processes to address obstacles that inhibit learning, including:

- Ego: We all want to be liked and perceived favorably by others. As a result, we defend, deny, and deflect what we think may cause us to lose face or to look uninformed or not particularly smart.
- Fear: We seek to avoid the embarrassment of failure.
- Complacency: When we learn something, we tend to retreat to automatic pilot mode, resisting new challenges and ideas.

Britt Andreatta, PhD is the Director of Learning and Development at Lynda.com and a senior learning consultant for talent and leadership development at LinkedIn. She has created a six-step guide to create a transformative culture of learning:

1. Honor the ever-present nature of learning. Cultivate potential to boost performance and offer vibrant learning events for every employee.
2. Value learning as a path to mastery. Make it safe to take risks.
3. Make learning easily accessible. Empower employees to ask questions.
4. Use blended learning to maximize options. In-person learning allows hands-on application and collaboration. On-demand learning offers flexibility and allows people to learn at their own pace.
5. Teach managers how to coach. Ask questions that help employees cultivate their own wisdom and confidence.
6. Evaluate performance based on learning. Reward growth and improvement.

The trick is to foster the kind of environment where workers feel empowered to spend time doing on-the-job training. Even offsite training opportunities, which may cut in on work time, can have a positive impact on work quality and the overall organization. Continuing education, professional development, and training in any form is critical to an organization's success. Promoting learning in the workplace is good business with the added benefit of having a more motivated and engaged workforce.

Lisa K. Secrest, CMAR, RLATG is a Training Program Coordinator for Priority One Services.

"The Care and Feeding of Laboratory Animal Personnel: Grow a culture of learning in your workplace." by Lisa Secrest appeared in the AALAS membership magazine, *Laboratory Animal Science Professional, September 2016, and is reprinted by permission.*

2017 D4/SEAALAS Meeting

March 29—March 31, 2017

Courtyard Marriott Decatur

Decatur, GA

Registration for the 2017 D4 meeting is now open!

Head over to https://seaalas.wildapricot.org/page-18486 for more information.

Hotel reservations can be made by going to http://cwp.marriott.com/atldc/seaalas2017/.

D4/SEAALAS SPEAKERS WANTED

Theme: "Movin' on Up: Advancements in Lab Animal Science"

We are looking for topics on advancements in care, husbandry, housing, veterinary medicine, and even administration of laboratory animal science.

Have you switched to a new bedding that works wonders?

Does your facility have the best way to ease rabbit introductions?

Do you have a faster more accurate test you've switched to in the lab? Has your front office streamlined the way animals are ordered, or improved business processes?

Have you started a new training program that's really working for you?

To volunteer to speak, email adryman@emory.edu

For more information head on over to our website at

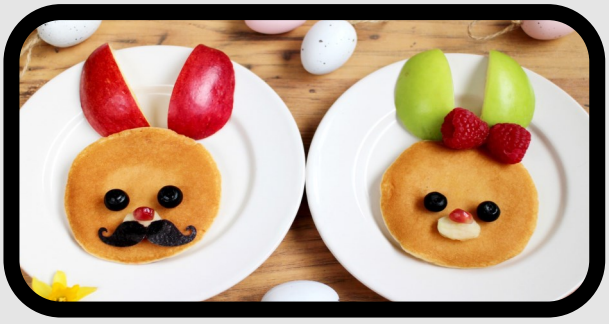
http://seaalas.wildapricot.org/2017-D4-Meeting

Facility News

Hello SEAALAS,

Georgia State University has had a busy few months. Our newest animal facility is officially open, a great reward after working hard with the builders and vendors on getting everything set up and ready to go. I realized, looking over my past newsletters that I forgot to congratulate Evan Hutto on his promotion to Animal Facility Supervisor. Evan was promoted from within and has already made his presence known with some great ideas on how to improve our operations. We also have some new faces here at GSU: Plamen Petkov and Kimberley Bryant join us as Laboratory Animal Technician I's. Both have jumped in and are working well.

We've successfully continued our Breakfast and Learn series with two more labs showing our technicians just how much they contribute to research, which is both educational and inspiring!



That's all for now!

Matt

Hello SEAALAS!

The Medical University of South Carolina welcomes Fall and the wonderful cooler weather to Charleston!

As with the change of seasons, there have been some changes here within DLAR.

We have new faces to welcome aboard! Amanda Hogan is an Animal Tech II that will be working in the Children's Research Facility. Mike Mattingly, Thomas Reckdenwald, and Atoi Smith will be working in our cage wash areas. Shaundrea Reid has accepted the role as Dr. Craig's Administrative Assistant in the DLAR main office.

DLAR wishes farewell to Angela Campbell and Caroline Roylance, who have accepted other positions on campus. We wish them the best of luck in future endeavors.

There have been a number of job openings here within our department recently. We are fortunate to have some wonderful folks who have been promoted from within:

- **Congratulations to Danielle Lynch for being promoted to Agricultural/Animal Associate II as a veterinary technician. Danielle will be working in all of our research facilities.**
- **Congratulations to Raquel Cook for being promoted from an Agricultural/Animal Assistant II to the Animal Purchasing Clerk as a Fiscal Technician II within our main office.**
- **Congratulations to Mary O'Brien for being promoted from the cage wash area in the Drug Discovery Building to an Agricultural/Animal Assistant II.**
- **Congratulations to Allison Levy for being promoted from an Agricultural/Animal Assistant II to and Associate I.**

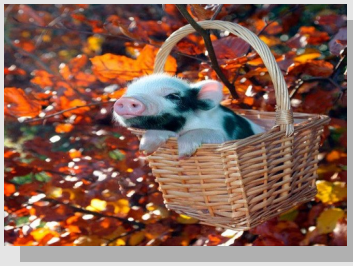
Congratulations to Nola Shepard for passing her LATg exam.

July Employee of the Month: Carlos Herrera, Strom Thurmond Building

August Employee of the Month: Juan Torres, Children's Research Institute

September Employee of the Month: Donald Wallace, Hollings Cancer Center

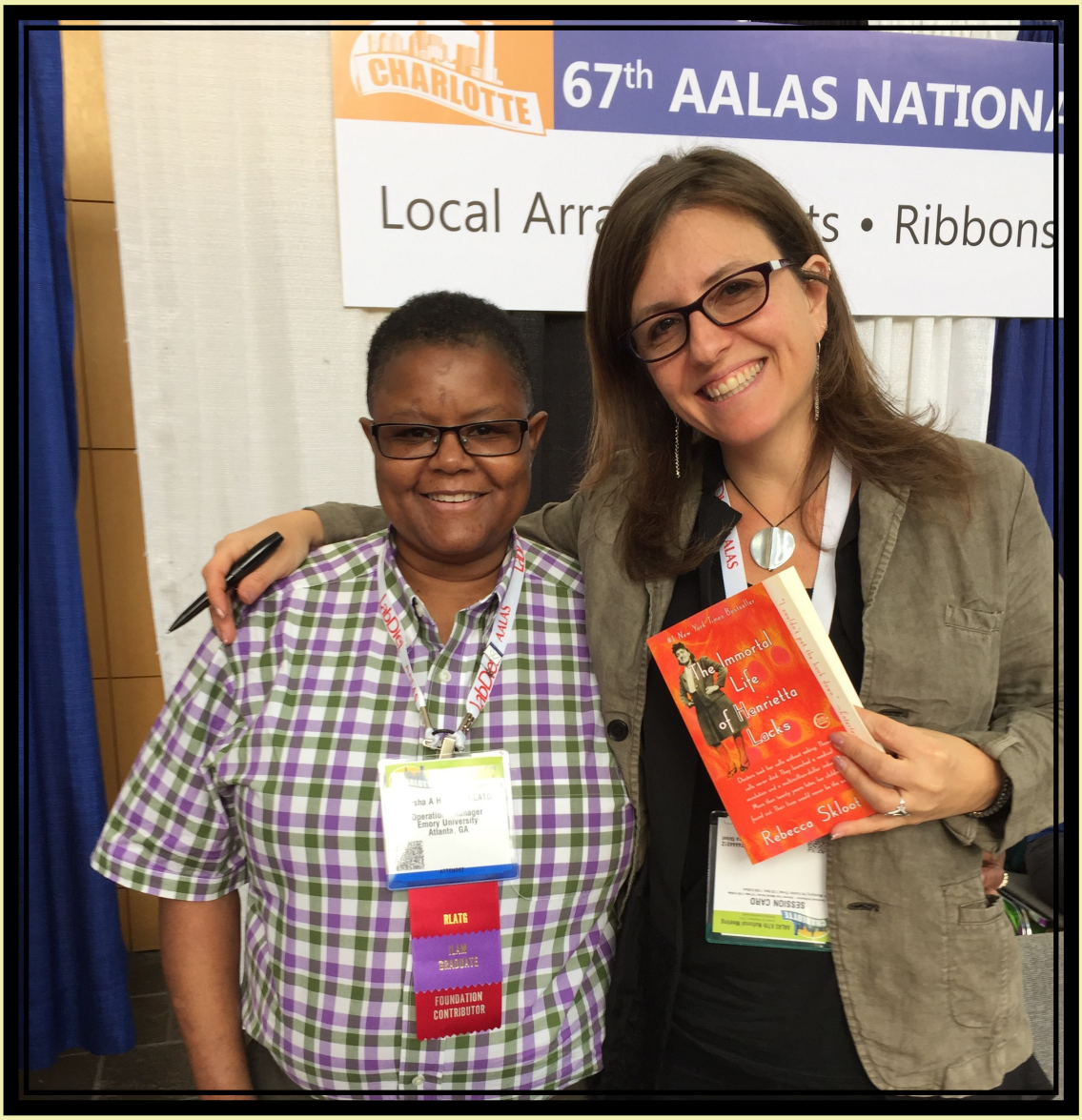
October Employee of the Month: Stephanie Walter, Veterinary Technician



Congrats to you all for being recognized for all of your hard work and dedication to our animals and to DLAR. We really appreciate you all and all of your efforts. Job well done!

Submitted by Deidre Wright, RLATg

It sure looks like somebody had fun at National AALAS!!



Marsha Howard, RLATg of Emory University meets Rebecca Skloot, Keynote Speaker and author of *The Immortal Life of Henrietta Lacks*

If anyone else has pictures from the meeting, please send them along so we can include them in the next newsletter!*

CHARLOTTE
AALAS 67th NATIONAL MEETING
OCT. 30 - NOV. 3, 2016

A Big Thank You!

I wanted to express a word of thanks to all those who were involved in selecting me, Gretchen Jeff, as the winner of the Quip Lab Award to attend this year's AALAS national meeting in Charlotte, N.C. Just can't say enough as to how excited I am to have this opportunity!

Gretchen T. Jeff, RLATG

QUIP LABORATORIES

AVMA launches database of clinical studies

Website will help researchers, animals, animal owners, practitioners

By Katie Burns

The AVMA launched the AVMA Animal Health Studies Database in June as a resource for researchers seeking animals to participate in clinical studies and for veterinarians and animal owners exploring options for treatment.

Until now, there really haven't been any national databases for veterinary studies, other than the Veterinary Cancer Trials website focusing on cancer in cats and dogs, said Dr. Ed Murphey, an assistant director in the AVMA Education and Research Division. The new AVMA website encompasses all fields of veterinary medicine and all species of animals and will extend beyond the United States to Canada and the United Kingdom.

"There are a lot of AVMA members that are involved in the conduct of clinical studies, and so, having the database helps them enroll animals into their studies," Dr. Murphey said. "And there's a direct benefit to practitioners who are looking for all avenues to help some of their owners and patients."

He continued, "Then there is an indirect benefit, too, and that's the advancement of evidence for the practice of veterinary medicine. Clinical studies, in particular clinical trials, are really the most informative and most scientifically accepted evidence for whether things work or don't work in clinical practice."

AVMA database

The new database is the brainchild of the AVMA Council on Research. In April 2014, the AVMA Executive Board, later renamed the AVMA Board of Directors, approved a recommendation from the council to form a working group to study the feasibility and development of a national registry of veterinary clinical trials.

Dr. Murphey said the group members looked at whether a clinical trials database was needed and whether it would be of value to AVMA members, then hammered out what it would look like and how it would function.

The working group recommended in July 2015 that the AVMA should forge ahead, and the Board agreed. Along the way, the group expanded the concept from a clinical trials database into a clinical studies database. The database covers not only randomized controlled clinical trials but also prospective clinical studies and survey and epidemiological studies.

Dr. Murphey said investigators might want to study a drug, surgical technique, or other treatment for a certain condition in animals. It could be as simple as wanting to collect samples from animals with a certain condition for DNA analysis. The investigators develop criteria for the animals, such as condition, age, or breed. Then the investigators put out a call for participation.

"There have, to this point, been limited opportunities for them to do so," Dr. Murphey said. "A lot of the universities have a website, and they may put that on the website, but that's highly dependent upon animal owners going to that university's website and discovering it, so that's not a very effective method. The AVMA Animal Health Studies Database will be a centralized collection where it will be one-stop shopping for people with animals with certain conditions who may be interested in trying to find out if there are any studies that may either help their animal or may at least help direct the advancement of knowledge for the condition."

Animal owners, veterinarians, and anyone else can search the database. Because of a concern about owners contacting an investigator while leaving their veterinarian out of the loop, the website emphasizes that owners interested in a study should discuss with their veterinarian whether the animal is eligible.

Ahead of the launch, the Veterinary Cancer Society transferred all the studies from its Veterinary Cancer Trials website—about 100—into the AVMA database. The AVMA also has been soliciting studies by reaching out to veterinary colleges.

Cancer trials

Dr. Kim A. Selting is the creator of the Veterinary Cancer Trials website as well as a member of the AVMA working group and an associate teaching professor at the University of Missouri College of Veterinary Medicine. She started working on the cancer trials website more than a decade ago.

"To do good-quality clinical trials, we need to have the right candidates. So if we pick the cases that we are most interested in, that will give us the information that we need, then we can have more powerful conclusions and make recommendations," Dr. Selting said. "And sometimes it's hard to find those cases. We know they're out there. We know that dogs get a particular kind of tumor or cats get a particular kind of tumor. But either the owners aren't aware of the opportunity to participate in a clinical trial, or they have some trepidation or uncertainty about participating in a trial, or they don't understand what all is involved in that with regards to money and time."

The purpose of the cancer trials website was to help researchers connect with cases and to help veterinarians understand what trials were available while offering options and sometimes cost offsets for animal owners.

"People will enroll in clinical trials for any one or a combination of these reasons: One is that they are seeking novel therapy because everything else has failed, and their pet still feels OK, and they want to keep trying. Two, they need subsidized care," Dr. Selting said. "Some people just really want to contribute to the greater good. I have people that come in, and they know there are other treatment options, and cost really isn't a particular constraint or concern for them, but they really feel good about contributing to the big picture."

Dr. Selting believes the new AVMA database will be helpful for practitioners. Having been in private practice, she knows that a practitioner might have 15 minutes for an appointment. So the practitioner offers options A, B, and C to the client. Now the practitioner can offer options A, B, C, and D, with D being to look for a clinical trial.

Another potential benefit of the AVMA database is completing studies more quickly.

Dr. Selting added that the working group tried to be inclusive so that the database includes every aspect of veterinary medicine, even wildlife studies that are not clinical trials but do involve and benefit animal health.

At the University of Missouri College of Veterinary Medicine, associate teaching professor Dr. Kim A. Selting (left) and technologist Joni Lunceford prepare a dog for positron emission tomography as part of a clinical trial. (Photo by Karen Clifford/University of Missouri)

Advancing medicine

Dr. Theresa "Terry" Fossum is chair of the AVMA working group, vice president for research and strategic initiatives at Midwestern University, and a professor of surgery at Midwestern's College of Veterinary Medicine in Glendale, Arizona.

"Clinical trials have long been an interest of mine," she said. "I am a huge proponent of the use of naturally occurring animal disease."

Unlike research animals, Dr. Fossum said, pets develop diseases naturally for the same reasons that people do, such as natural genetic variation and environmental factors. She believes enrolling pets in clinical trials will reduce the speed and cost of developing cutting-edge treatments and sophisticated diagnostic procedures for people and pets.

"Increasingly, our clients want the best of care," Dr. Fossum said. "They expect what they would get if they had that particular disease, and sometimes that does involve enrolling in a clinical trial."

To find clinical trials, a veterinarian has had to go to multiple websites and might have had no way to see what was available at private practices. "So having one site where it's easy for veterinarians and for pet owners to go in and see what clinical trials are available is just a huge move forward," she said.

Like Dr. Selting, Dr. Fossum has noticed the extent to which pet owners will go to treat an animal, often for reasons beyond hope for a successful treatment. She said, "They are going to have other pets, and they want to facilitate research that will reduce diseases; oftentimes, they are going to have a pet of the same breed. And then the other reason they will often state is that they do want to help humans."

Dr. Fossum said the AVMA database also serves as an educational tool with information about what a clinical trial is, what participation means, and what some of the terminology means.

As studies listed in the database are completed, the working group is hopeful that researchers will return to their listing to post the results of the study—in formats such as a summary, abstract, or manuscript.. Part of the idea is to provide information about whether results are negative or positive, and therefore, whether an intervention is worth pursuing. Dr. Fossum said, "Very few people publish negative results on the whole, but sometimes those negative results are as informative as positive ones."

Submitting and finding studies

Investigators who want to call for study participants via the AVMA database should submit studies through the website. Members of the AVMA can log in with their identification number and password, and others can create a user account. A dashboard page allows investigators to add or edit studies.

After an investigator submits a study, AVMA staff will scan it and forward it to a curator. The curator will help the investigator clarify information as necessary, then will mark the study for publication on the website.

Visitors to the website can view all available studies or search in the following categories: diagnosis or keywords, primary field of veterinary medicine, country, and species. Details about the studies include a project description, study type, intervention, inclusion criteria, exclusion criteria, potential medical benefits to enrolled animals, potential medical risks to enrolled animals, and financial incentives for study participants.

The AVMA Animal Health Studies Database is at www.avma.org/

As seen on https://www.avma.org/News/JAVMANews/Pages/160715a.aspx

Submit an Article to Lab Animal Science Professional

LAS Pro Submission Guidelines

Laboratory Animal Science Professional, the official magazine of the American Association for Laboratory Animal Science (AALAS), is filled with reliable, practical information, including the latest developments and strategies in laboratory animal science, such as management, professional development, occupational health and safety, facility design, technologies and much more.

Authors are invited to submit articles for consideration. Articles selected for publication may be edited for style, clarity, and length.

Article Types and Required Elements

The majority of articles submitted will fall into one of three categories: a tech tip, a feature article, or an opinion/editorial.

Tech Tip: These articles are intended to describe a process or idea that other technicians would find beneficial. These articles should have an introduction, materials and methods section, and a conclusion. If animals are used in the study, a statement about animal welfare and approval of IACUC committees is required. Any funding sources or vendors should be listed with the article. All authors and co-authors should provide approval for final versions.

Feature article: Feature articles often contain a human interest element. These articles include interviews and stories centering on people and events. Feature articles can also cover topics in a more in depth fashion and highlight the most interesting and important elements of a situation or experience. All authors and co-authors should provide approval for final versions.

Opinion/Editorial article: These articles represent the opinions or interpretations of the authors rather than describing a process or study. They do not require distinct sections. However, these articles should still be supported by literature and references as appropriate. All authors and co-authors should provide approval for final versions.

The Editorial Advisory Board reviews each submission and rates the article in the following categories:

- Is the article of interest to the audience?
- Is the article well written?
- Were animals used humanely?
- Does the article include a statement indicating that studies were approved by an IACUC?
- Are all photographs and/or graphs necessary, supported by a clearly written legend, legible, and of sufficient quality?

Any references provided must be formatted in CSE style.

More Information

Technician Tip Articles: Suggested article length is 500-1000 words. Article text should be submitted in an MS Word file. All images should be labeled to match callouts in the text and attached separately. Please include the original photos, charts, and graphs. All photos must be 300 dpi and high resolution tif or jpeg files. Charts and graphs should be submitted in their original formats.

Feature Articles: Suggested article length is 750-1500 words. Article text should be submitted in an MS Word file. All images should be labeled to match call-outs in the text and attached separately. Please include the original photos, charts, and graphs. All photos must be 300 dpi and high resolution tif or jpeg files. Charts and graphs should be submitted in their original formats.

Article queries may be sent to the AALAS Communication Department: **laspro@aalas.org**.

US government issues historic $3.5 million fine over animal welfare

By Sara Reardon, *Nature News*

The US government has fined Santa Cruz Biotechnology, a major antibody provider, US$3.5 million over alleged violations of the US Animal Welfare Act. The penalty from the US Department of Agriculture is the largest in the agency's history.

The company, which is headquartered in Dallas, Texas, will pay the fine as part of a settlement with the US Department of Agriculture (USDA). The agency had lodged three animal-welfare complaints against Santa Cruz Biotech, after USDA inspectors found evidence that the company mistreated goats at its facility in California.

Santa Cruz Biotech contested the government complaints, and the 19 May settlement agreement says that the company "neither admits nor denies" that it violated US animal-welfare regulations.

The settlement also permanently revokes Santa Cruz Biotech's government license to sell, buy, trade or import animals. And it requires the company to cancel its registration to operate as a research facility that uses animals.

Cathy Liss, president of the Animal Welfare Institute, an advocacy group in Washington DC, says that she is shocked by the unprecedented size of the fine on Santa Cruz Biotech. The largest previous fine that the USDA had imposed for animal-welfare complaints was a $270,000 penalty levied in 2011 against Feld Entertainment, which operates the Ringling Brothers and Barnum & Bailey Circus.

The settlement with Santa Cruz Biotech marks the end of a long-running investigation of the company's animal-welfare practices. The USDA has lodged three animal-welfare complaints against Santa Cruz Biotech since 2007, after agency inspectors reported finding problems such as goats with untreated coyote bites and massive tumors, and rabbits being housed in cruel conditions. USDA inspectors also discovered that Santa Cruz was keeping 841 goats in a hidden facility.

In February, *Nature* reported that more than 5,000 goats and rabbits had disappeared from Santa Cruz's facilities before a scheduled hearing on the USDA complaints. Santa Cruz would not confirm whether the animals were killed or sold.

As seen at: http://www.nature.com/news/us-government-issues-historic-3-5-million-fine-over-animal-welfare-1.19958

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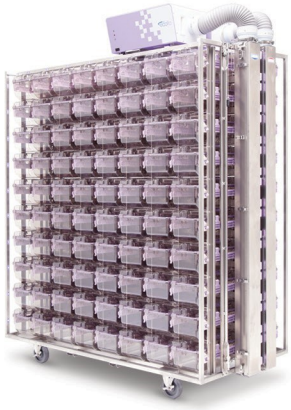

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*Sentinel animal use estimated at 750,000—1,000,000 animals worldwide per year.

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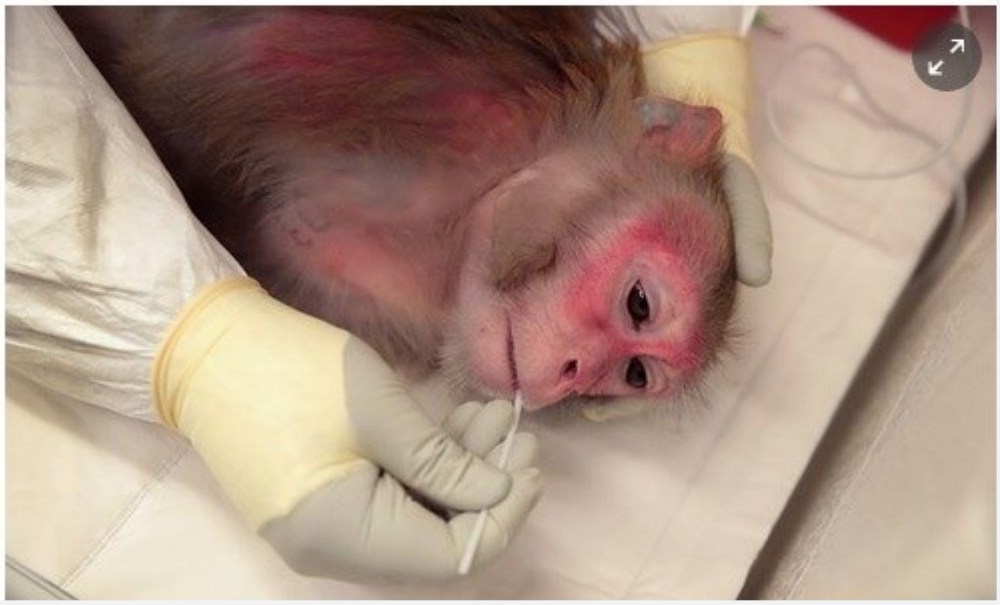
Primate research is crucial if we are to find cures for diseases like Parkinson's

To effectively combat the scourge of neurodegenerative and other crippling diseases, we require the careful and considered use of nonhuman primates



This letter, now signed by more than 600 primate researchers and neuroscientists and over 20 institutions, was published on September 13th in the Guardian (and an edited version in print on the 14th). An accompanying article was also published by The Guardian. Understanding Animal Research coordinated this letter in response to the many researchers in the UK and around the world who were frustrated by recent efforts by animal rights groups to ban primate studies, and urged us to act. After 21 scientists signed a letter in the Independent questioning primate studies in neuroscience, we wanted to demonstrate the weight of expert opinion on this sensitive issue.

Nonhuman primates have long played a key role in life-changing medical advances. A recent white paper by nine scientific societies in the US produced a list of fifty medical advances from the last fifty years made possible through studies on nonhuman primates. These included: treatments for leprosy, HIV and Parkinson's; the MMR and hepatitis B vaccines; and earlier diagnosis and better treatment for polycystic ovary syndrome and breast cancer.

The biological similarities between humans and other primates mean that they are sometimes the only effective model for complex neurodegenerative diseases such as Parkinson's. More than ten million people suffer from Parkinson's worldwide, and a recent study estimated that one in three people born in 2015 will develop dementia in their lifetime. Primate research offers treatments, and hope for future treatments, to patients and their families. Already over two hundred thousand Parkinson's patients have had their life dramatically improved thanks to Deep Brain Stimulation surgery, which reduces the tremors of sufferers. This treatment was developed from research carried out in a few hundred monkeys in the 1980-90s.

Given that primates are intelligent and sensitive animals, such research requires a higher level of ethical justification. The scientific community continues to work together to minimise the suffering of primates wherever possible. We welcome the worldwide effort to Replace, Refine and Reduce the use of primates in research.

We, the undersigned, believe that if we are to effectively combat the scourge of neurodegenerative and other crippling diseases, we will require the careful and considered use of nonhuman primates. Stringent regulations across the developed world exist to ensure that primates are only used where there is no other available model – be that the use of a mouse or a non-animal alternative and to protect the wellbeing of those animals still required. The use of primates is not undertaken lightly, however, while not all primate research results in a new treatment, it nonetheless plays a role in developing both the basic and applied knowledge that is crucial for medical advances.

Sir John Gurdon, DPhil, Professor at University of Cambridge, Nobel Laureate in Physiology or Medicine 2012

Sir John E Walker, DPhil, Emeritus Director and Professor at MRC Mitochondrial Biology Unit, Nobel Laureate in Chemistry 1997

Alim Benabid, MD, PhD, Professor Emeritus of Biophysics at Joseph Fourier University, Joint Winner of the 2014 Lasker-DeBakey Clinical Medical Research Award

Mahlon DeLong, MD, Professor of Neurology at Emory University School of Medicine, Winner, with Prof. Alim Benabid, of the 2014 Lasker-DeBakey Clinical Medical Research Award

Sir Colin Blakemore, PhD, Professor of Neuroscience and Philosophy in the School of Advanced Study, University of London

Miguel Nicolelis, PhD, Professor of Neurobiology at Duke University, Director of Neuroengineering

Giacomo Rizzolatti, PhD, Professor of Human Physiology, University of Parma, Italy

Signing on behalf of organisations:

F. Claire Hankenson, DVM, MS, President, **American College of Laboratory Animal Medicine**

Jane F. Reckelhoff, PhD, President, **American Physiological Society**

Susan H. McDaniel, PhD, ABPP 2016 President, **American Psychological Association**

Kimberley Phillips, PhD, President, **American Society of Primatologists**

Cindy Buckmaster, PhD, President, **Americans for Medical Progress**

Iris Rush, CAE, Executive Director, **Association for Research in Vision and Ophthalmology**

John Aggleton, PhD, FRS, FMedSci, Professor, President, **British Neuroscience Association**

David Webb, MD, President, **British Pharmacological Society**

Leonard Howell, PhD, President, **The College on Problems of Drug Dependence, Inc**

Gregg Stanwood, PhD, President, **Developmental Neurotoxicology Society**

Kirk Leech, Executive Director, **European Animal Research Association**

Hudson H. Freeze, PhD, President, **Federation of American Societies for Experimental Biology**

Barry Everitt, FRS, Fmedsci, President, **Federation of European Neuroscience Societies**

Matthew Bailey, Executive Vice President, **Foundation for Biomedical Research**

Pierre Magistretti, MD, PhD, President, **International Brain Research Organization**

Mark Smith, PhD, President, **International Study Group Investigating Drugs as Reinforcers**

Keiji Tanaka, PhD, President, **Japan Neuroscience Society**

John Hogan, PhD, Registrar, **Newcastle University**

David Eisner, DPhil, President, **The Physiological Society**

Kenneth Sher, PhD, President, **Research Society on Alcoholism**

Hollis Cline, PhD, Professor, President, **Society for Neuroscience**

Allyson Bennet, PhD, Scientific Director, **Speaking of Research**

Wendy Jarrett, Chief Executive, **Understanding Animal Research**

Michael Arthur, Professor, President & Provost, **University College London**

As seen on: http://www.understandinganimalresearch.org.uk/news/communications-media/guardian-publish-letter-in-support-of-primate-research/

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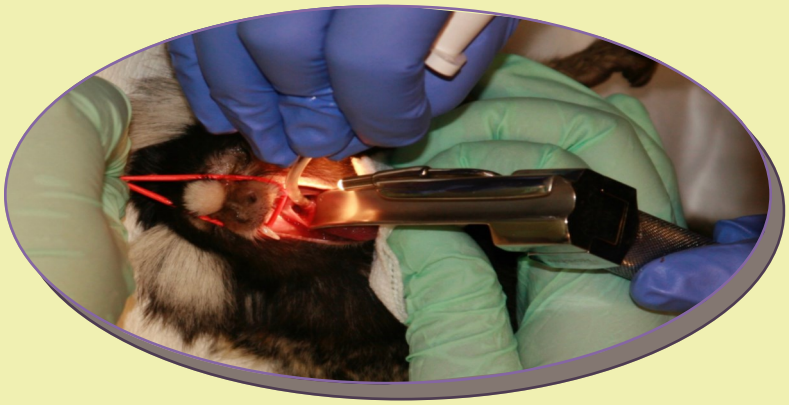
More about us: Over the next few years we plan to roll out three main categories of specialization that focuses on clinical medicine and skill in the research setting. They are as follows:

1. Research Clinical Nursing, with species categories of "Traditional", "Non-Traditional" and "Large Animal" species. – A person spending a majority of their time providing project support and veterinary care to research animals.

2. Research Surgeon- A person who spends a majority of their time performing surgical procedures and provides veterinary care to research animals.

3. Research Anesthetist- A person who spends a majority of their time providing anesthesia and analgesia, while also providing veterinary care to research animals.

We are hopeful to have our first exam for the Clinical Nursing category in "Traditional" lab animal species by the 2017 National AALAS meeting. This first application period will be short compared to the following years. Application packets will be available by the end of January 2017 on the website with a due date of April 2nd. Notifications of approval for the applications will be July 1st with the exam to be held at the same years National AALAS meeting.



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white paper /

THE CRITICAL ROLE OF NONHUMAN PRIMATES IN MEDICAL RESEARCH

The sponsors of this report endorse carefully regulated research with nonhuman primates. This research is essential to learning about the biology, treatment and prevention of diseases and conditions that cause human suffering.

Research with nonhuman primates (NHPs) – monkeys for the most part – has led to critical health advances that have saved or improved millions of human lives. While NHPs account for just one-half of one percent of animals in current medical research, it is no exaggeration to say they are essential to our ability to find cures for cancer, AIDS, Alzheimer's, Parkinson's, obesity/diabetes and dozens of other diseases that cause human suffering and death.

Research with monkeys is critical to increasing our knowledge of how the human brain works and its role in cognitive, motor and mental illnesses such as Alzheimer's, Parkinson's and depression. This research is also fundamental to understanding how to prevent and treat emerging infectious diseases like Zika and Ebola. NHP research is uncovering critical information about the most common and costly metabolic disorder in the U.S. – type 2 diabetes – as well as the obesity that leads to most cases.

Without NHP research, we lose our ability to learn better ways to prevent negative pregnancy outcomes, including miscarriage, stillbirth and premature birth. This research is also helping scientists to uncover information that makes human organ transplants easier and more accessible, literally giving new life to those whose kidneys, hearts and lungs are failing.

Monkeys Are Critical to All Stages of Research

News headlines tout medical breakthroughs. Breakthrough sounds dramatic, and to someone hearing about how the virus that causes polio is being used to put an aggressive form of brain cancer into remission, it is indeed. But as the scientists involved in that cancer research—and research into every other area of medicine—will tell you, breakthroughs might be dramatic, but they are never sudden.

A well thought-out and structured process is behind virtually every medical breakthrough and the discovery process probably took decades or more. Every step in the process was essential to the next, from basic research to human clinical trials.

Monkeys are often involved at the later stage of the process— what is called translational or applied research. Here all of the knowledge accumulated earlier is applied to specific medical questions such as: Will this vaccine protect a pregnant woman (and her baby) from Zika infection? And is the vaccine likely to be safe?

But monkeys also play a vital role in basic science research that can come decades earlier. Basic NHP research in the 1970s helped scientists understand the inner workings of the basal ganglia, the part of the brain that coordinates movement.Those early findings led to the "breakthrough" 30 years later in which deep brain stimulation is used to reduce involuntary movements of Parkinson's disease. See more breakthroughs linked to NHP research in Appendix A.

Regardless of where it occurs in the scientific discovery process, research with monkeys is highly regulated (see Appendix B). Scientists use monkeys only when no other research model can provide the required information. While rodents are used extensively and are extremely helpful in answering many basic research questions, their usefulness is limited by differences from primates in their lack of sophisticated brain structures, less developed immune systems and motor skills, and differences in how their metabolism functions, among other traits.

To cite an example, rodent brains are very different from human brains. The rodent lacks the prefrontal cortex specialization that is found in monkeys and humans. This difference limits the applicability of rodent studies in relation to studies of injury in the human brain.

Current studies in monkeys are helping to find ways to help wounded soldiers and stroke victims regain their independence after losing limbs or the ability to control them.

NHPs are also the only animals that allow quick response and research into emerging viruses, like Zika. What scientists learn about Zika itself, as well as what they learn about the best use of monkeys in Zika studies, they will apply to studies of future emergent diseases. And with recent history as a guide (Zika, Ebola, MERS, SARS, pandemic flu, etc.), we should expect more infectious disease outbreaks in the near future.

Focus on the Future: NHP Research Brings Hope to Millions of Patients

Boosting the Body's Natural Defenses to Kill Cancer

Modified poliovirus is being tested as a way to help the body's immune system see and destroy glioblastomas, the deadliest type of brain cancer. Glioblastomas can double in size every two weeks and can be deadly within months of diagnosis. The new treatment has led to complete remission in two glioblastoma patients and investigations are ongoing.

This type of research, called immunotherapy, uses the body's natural defense – the immune system – to destroy cancer cells. The harmless form of poliovirus is injected into glioblastoma tumors where it attaches to the cancer cells. The immune system recognizes the poliovirus as a dangerous invader and attacks – killing it and the cancer along with it.

It was 18 years from the earliest research until the first study in humans. Monkey research was essential in mapping out how to get the poliovirus through the brain and inside the cancerous tumors. The National Institutes of Health and the Food and Drug Administration also mandated testing the treatment first in monkeys to be sure the modified poliovirus would be harmless to humans.

Doctors now are designing research to use this approach in treating many forms of cancer – including breast and prostate cancers – since the same receptor on the glioblastoma tumors that allows the poliovirus to attach itself also is found on virtually every cancerous tumor in humans.

HIV/AIDS: Looking for a Vaccine and a Cure

Scientists are looking for vaccines that can prevent HIV infection and treatments leading to a cure for HIV disease ("AIDS"). Just 20 years ago medical advances changed the disease from a death sentence into a chronic, manageable disease. Drugs that keep the virus in check now give millions of HIV-infected people hope for a long and productive life.

Drug therapies effectively prevent HIV disease, but scientific advances in HIV are still needed. People with well-treated HIV still face more health problems than those without HIV.[1, 2] They age faster, too. Doctors estimate people with HIV are at least 5 to 14 years older than their chronological age.[3,4]

Monkeys are crucial to ongoing HIV research because of the combination of their unique biology among animals and their longevity, which is key in HIV studies that take from months to years to complete. Their similar biology helps scientists understand HIV disease, infection routes, the potential for vaccine-induced protection and even an HIV cure.

An experiment reported in early 2016 looked at preventing mother-to child HIV transmission.[5] After being exposed to simian-human immunodeficiency virus (SHIV), which is similar to HIV, infant monkeys with early stage infection were treated with human antibodies to block the infection. All of the monkeys in this experiment had no detectable virus in their blood or any of their tissues at the end of six months of observation.

In another experiment reported this year, rhesus macaques infected with another HIV-like virus were treated with standard anti-HIV medications plus an experimental drug that stimulates the immune system.6 At the end of the study, 90 days after both medications were stopped, two monkeys showed no detectable virus in their bloodstream. This immune system stimulator was tested earlier in NHPs infected with chronic hepatitis B, leading to current research in humans with this potentially deadly infection.[7]

These studies hold promise for protecting babies from HIV infection and for finding a cure for those already infected, but much more research with monkeys will be needed to get there.

Improving Pregnancy Outcomes

In human clinical studies, a fundamental question is, "Do the potential benefits of this treatment outweigh the potential risks?" This question takes on added meaning when the study is in pregnant women. Researchers must not only consider the risks and benefits to the pregnant woman, but also to her developing fetus and ultimately to the child.[8]

But how do researchers even begin to define these risks and benefits before human clinical trials? The answer is research with monkeys, since their fetal and placental development is uniquely similar to humans.

Researchers are working with macaque monkeys to understand the impact of Zika, the latest virus to emerge as a global threat. Zika infection in pregnant women can cause microcephaly, a condition where the child is born with a small head due to abnormal brain development. It also appears to cause stillbirth, miscarriages and fetal growth restriction. These problems all appear to be rooted in how the Zika virus affects the developing fetus and the placenta, which nourishes the baby in its mother's womb.

The Zika virus infects monkeys just as it does humans, and both experience the disease in the same way. Researchers can study pregnant monkeys much as an obstetrician follows a woman's pregnancy – they can take blood, monitor fetal development through ultrasounds and collect amniotic fluid. They can then test vaccines and drugs with the hope of protecting the fetus. No other animal model allows for this entire spectrum of study and application of the findings to pregnant women.

Transplant Tolerance: The Next Big Step in Organ Transplant Success

More than 120,000 people in the U.S. are waiting for organ transplants and 22 of them die every day.[9] It is all the more tragic, then, when an organ transplant fails. This failure, or rejection, is caused when the recipient's immune system sees the new organ as "foreign" and attacks it.

To reduce the chance of organ rejection, transplant patients receive drugs to suppress their immune system. But the drugs come with a risk of toxicity and increase the risk of other problems, including development of cancers and infections resulting from a weakened immune system.

Research with monkeys is focused on achieving transplant tolerance— where the body's immune system does not see the new organ as foreign, thus eliminating the need for immunosuppressive drugs. While scientists have already made great strides in kidney transplant tolerance, they understand that tolerance is organ specific, so knowledge about the kidney may not transfer to the heart, lungs, liver, pancreas/pancreatic islets, or other types of transplants.

Transplant tolerance also differs by species. In other words, what works in a mouse may not work in a pig, and what works in a pig may not work in a monkey. Scientists learned about kidney transplant tolerance by starting with mice and then working up through swine and eventually into monkeys and humans. The same process is underway now for many other types of transplants.

Mapping Out Brain Function

How does the brain work? No question could be more important for understanding human behavior and mental health, and for acquiring new information about the triggers in the brain that cause psychiatric, movement and other neurological diseases. The U.S. National Institutes of Health-supported BRAIN Initiative has developed a plan for improving our knowledge in these areas and research with monkeys and other species is critical to its success.[10]

Scientists are mapping the activity of the billions of neurons deep inside the brain – the special cells that transmit the signals that drive thinking, mood, movement and much more. By tracking neuron activity in monkeys while they are performing new tasks, scientists can actually see what parts of the brain are involved in sending the signals that take in, process, and store the newly acquired information.

What is unique to – or at least greatly enhanced by – the use of monkeys in this research is the range of cognitive behaviors that can be studied, the amount and precision of the data that can be collected, and the relevance of that data to human behavior and mental activity.

Seeing what is happening in a healthy monkey brain helps scientists understand what has gone wrong when a human brain is no longer working as it should. This type of research has relevance to Parkinson's disease and other movement disorders, all forms of dementia, including Alzheimer's, and behavioral and psychiatric problems from alcoholism and attention-deficit disorder to bipolar disorder and autism.

Alzheimer's and other dementias cost the U.S. $236 billion each year.[11]

Turning Science Fiction into Science Fact: Brain-Machine Interfaces

You see someone walking haltingly, dragging one leg behind him, or sitting with one arm draped listlessly on a table and immediately know he has had a stroke. Scientists learned long ago that it's not the muscles that are at fault; it's the nerve impulses inside the brain that have been affected.

A combination of scientific breakthroughs in neuroscience, computer processing and robotics has led to development of "brain-machine interfaces"–devices that allow humans to interact with their environment with prosthetic arms when they have lost the use of their own.

Brain-machine interfaces translate signals in the brain into directions to move prosthetic arms.

This area of research shows enormous promise for humans who are paralyzed, such as injured veterans, or those with brain damage and paralysis due to stroke. As NHPs and humans have similarly developed brains and movements, experiments in monkeys have been vital to moving this field forward both conceptually and technically.

Developing Vaccines for Babies and Adults

NHPs are essential to vaccine research. Among research animals, they alone can reproduce the entire biological process of the infections being studied. They allow researchers to monitor for information that is vital in understanding human infectious diseases – such as how a virus or bacterium reproduces inside the body, what symptoms it causes, and how the body's immune system responds to attack the invader.

Among the viruses currently in vaccine research trials is respiratory syncytial virus, or RSV – the most common cause of lower respiratory tract infections in U.S. infants and small children.[12] There is no treatment for RSV,13 which hospitalizes nearly 60,000 U.S. children under age 5 every year and sends 2.1 million more to the doctor.14 Vaccine research with monkeys is evaluating the safety of potential RSV vaccines in infants.

Other viruses under study include Ebola and Marburg, which can cause extreme bleeding that leads to death; the mosquito-borne Dengue and Zika viruses, capable of causing massive epidemics; and Middle East Respiratory Syndrome (MERS) plus the dangerous H5 and H7 bird flu strains, all of which have very high death rates.

Baboons and Humans: Unique Connections for Blood Pressure Control

Lowering blood pressure is vitally important to individuals and our society. High blood pressure is a major factor in heart disease – the number one killer in the U.S. and the world.[15] And it's not just heart disease; high blood pressure leads to stroke, kidney damage, memory problems and many other illnesses.[16]

Decades ago, researchers made a breakthrough discovery that long-term blood pressure regulation is nearly identical in humans, baboons and other NHPs. In fact, adult NHPs frequently develop hypertension similar to humans. Subsequent studies with monkeys have helped billions around the world lower blood pressure and reduce their risk of deadly complications.

Scientists recently discovered that baboons share another unique trait with humans – a characteristic in their red blood cells that can lead to salt-sensitivity and an inherited form of hypertension that is particularly difficult to treat. Current research is looking for new targets to control this type of high blood pressure. Research with monkeys provides another key benefit – lifespan. High blood pressure becomes more common as we age and researchers are able to work with older baboons to gain essential information about the mechanisms driving this age-based increase – vital to the health of our aging population.

Diabetes and Obesity: Connected in NHPs Just as in Humans

Type 2 diabetes develops in monkeys just as it does in humans, even following the same age patterns, that is to say, more disease as we get older (one-fourth of U.S. seniors have diabetes).[17] NHPs with diabetes even develop the same complications that are common in humans: eye disease, kidney disease, nerve damage and pain, and blood vessel disease, among others.[18]

NHPs and humans have very similar systems that regulate blood sugar. For example, the structure and function of the group of cells in the monkey pancreas (called islets) that produce insulin are very similar to human islets. The islets in mice, rats, pigs, and other animals share some similarities with humans, but there are important differences, making monkeys a critical model for developing treatment and prevention methods, and for testing new therapies for people with diabetes.

Nonhuman primates are the ideal model for testing new therapies for people with diabetes, including the artificial pancreas, drugs and devices

Type 2 diabetes and the U.S. obesity epidemic are linked – obesity is a contributing factor to the condition. More than a third of U.S. adults are obese and another third are overweight.[19] As with diabetes research, monkeys provide a critically important study model for human obesity. Monkeys that are fed a diet similar to the typical American diet respond like humans, gaining weight and later progressing to type 2 diabetes.

Researchers are examining the role of gastrointestinal proteins called glucagon-like peptides in the development of obesity in bonnet macaques. Bonnet macaques are unique among NHPs because they have a strong genetic predisposition to obesity. This research is looking for obesity treatments that will be as effective as invasive bariatric surgery, but with far less risk.

Appendix A: Partial List of Scientific Advances Linked to Research in Nonhuman Primates

1900-1950s

- Components of blood and plasma discovered.
- Ability to diagnose and treat typhoid fever.
- Modern anesthesia.
- Mumps virus discovered.
- Treatment of rheumatoid arthritis.
- Discovery of the Rh factor, blood-typing knowledge critical for safe blood transfusions.
- Development of polio vaccine.
- Development of antipsychotic medication chlorpromazine and its tranquilizing derivatives.
- Cancer chemotherapy.
- Development of yellow fever vaccine.

1960s

- Mapping of the heart's connections to arteries.
- Development of German measles vaccine.
- Therapeutic use of cortisone for reducing inflammation and allergy symptoms.
- Corneal transplants.
- Development of treatment and prevention of radiation sickness.
- Development of measles, mumps, and rubella (MMR) vaccine.
- Discovery of the biochemical cause of depression.
- Transmissibility of human prion diseases, such as Creutzfeldt-Jacob disease, discovered.

1970s

- Treatment of leprosy.
- Procedures to restore blood supply in the brain.
- Interaction between tumor viruses and genetic material.
- Understanding of slow viruses, which linger in the nervous system.
- Understanding of the inner workings of the basal ganglia, the part of the brain that coordinates movement.
- Discovery of mechanisms of opiate withdrawal and the anti-withdrawal effects of clonidine.
- Development of cyclosporine and other anti-rejection drugs helpful for organ transplants.

1980s

- Processing of visual information by the brain.
- Identification of physiological and psychological co-factors in depression, anxiety and phobias.
- Treatment of malnutrition caused by food aversion following chemotherapy.
- Treatment of congenital cataracts and “lazy eye” in children.
- First animal model for research on Parkinson’s disease, enabling doctors to more accurately research human Parkinson’s disease.
- Heart and lung transplant to treat cardiopulmonary hypertension.
- First hepatitis B vaccine. • Development of rhesus monkey model for HIV/AIDS.
- Addition of taurine to infant formulas. Taurine is necessary for normal eye development.
- First treatment of naturally diabetic NHPs with a hormone-like insulin stimulus that is now in wide use both for diabetes and obesity treatment (GLP-1 agonist)

1990s

- Estrogen discovered to control an enzyme key to making serotonin, the brain chemical that regulates mood. Represents first step to providing effective medications for depression at the end of the menstrual cycle, and postpartum and postmenopausal depression.
- Demonstration of the effectiveness of early administration of AZT to prevent or treat HIV infection. Thanks to this, HIV-infected mothers can give birth to HIV-free babies.
- Demonstration in monkeys of the high efficacy of the HIV drug tenofovir to prevent or treat infection.
- Lead toxicity studies help U.S. fight childhood lead exposure.
- Ongoing development of a one-dose transplant drug to prevent organ rejection.
- First controlled study to reveal that even moderate levels of alcohol are dangerous in pregnancy.
- Breakthroughs in understanding the mechanisms of puberty and disorders of puberty.
- Primate embryonic stem cells studied extensively for the first time, advancing efforts to better understand reproduction and genetic disorders.
- Control of intimal hyperplasia, a complication of coronary bypass surgery.
- Parent to child lung transplants for cystic fibrosis.
- NHPs shown to naturally develop diabetes, which is the same disease as in humans, thus opening the path to research for new treatments.
- Naturally regenerative mechanism discovered in the mature NHP brain, spurring new research toward curing Alzheimer’s and other degenerative brain disorders.
- Development of anthrax vaccine.
- Development of life-saving medications for lupus

2000s

- Gene that boosts dopamine production and strengthens brain cells used to successfully treat monkeys showing symptoms of Parkinson’s disease.
- Monkey model developed to study the effects of malaria in pregnant women and their offspring.
- NHPs are prime model for development of HIV treatments and potential vaccines.
- Insulin-treated diabetic patients live longer, fuller lives.
- The most common and debilitating complications of diabetes can now be studied in NHPs.
- High blood pressure is treated to prevent heart attack, stroke, and kidney failure.
- Patients can receive hip replacements and are no longer reliant on wheelchairs.
- People with degenerative eye diseases are able to see more clearly.
- Better medications improve lives of people with severe depression, bipolar disorder, and other psychiatric illnesses.

- Better pre- and postnatal care protects children.
- Earlier diagnoses and better treatments help those with polycystic ovary syndrome, endometriosis, and breast cancer. • Improved treatments help more men survive prostate cancer.
- Secondhand smoke shown to affect prenatal, neonatal and child lung development, cognitive function and brain development. • Exposure to wildfire smoke adversely affects development of the immune system.
- Better understanding of the effects of BPA, a chemical found in plastic, on prenatal development improves health of children and adults.

Appendix B: Regulating the Use of Nonhuman Primates in Research

Two federal agencies oversee how animals are used in medical research.

For **research funded by any Public Health Service entity**, such as the National Institutes of Health (NIH) or the National Science Foundation, the NIH:

→Establishes Public Health Service Policy on Humane Care and Use of Laboratory Animals. [20]

→**Mandates use of** the *Guide for the Care and Use of Laboratory Animals*, which is issued by the **National Academy of Science Institute for Laboratory Animal Research**. This guide addresses day-to-day aspects of caring for laboratory animals.[21]

→Mandates that every institution appoints an Institutional Animal Care and Use Committee (see below).

The **USDA's Animal Plant and Health Inspection Service** enforces the Animal Welfare Act with unannounced compliance inspections of all regulated entities using animals in research, testing or teaching at least yearly.[22]

The **Association for the Assessment and Accreditation of Laboratory Animal Care International** is an independent non-government accrediting organization. While voluntary, this accreditation includes broader requirements than the regulations. This demonstrates research facilities want to go "above and beyond" in the care of animals.[23]

Every institution involved in nonhuman primate research is required by the Animal Welfare Act as well as Public Health Service policy to appoint and empower an **Institutional Animal Care and Use Committee**[24] that reviews and approves the research. Scientists must justify their use of primates and also explain why alternative forms of research (for example, studying cells or using computer simulations) are not able to achieve their scientific goals. They must also confirm that their research does not unnecessarily duplicate previous research.[25]

*This report was developed by experts from the following organizations:
The American Physiological Society, the American Academy of Neurology, American Transplant Foundation, Federation of American Societies for Experimental Biology, Society for Neuroscience, American Society for Microbiology, American College of Neuropsychopharmacology, the Endocrine Society, and the Foundation for Biomedical Research.

To read the entire paper, go to:

http://www.the-aps.org/mm/SciencePolicy/AnimalResearch/Current-Issues/Primate-Research/Primate-White-Paper.html

Upcoming Educational Opportunities

December 5–6:

Scientists Center for Animal Welfare Annual Winter Conference in San Antonio, Texas

http://www.scaw.com/conferences--workshops/2016-winter-conference/

December 7:

AALAS Webinar: Strategies for Social Housing of Rabbits

https://www.aalas.org/store/meeting?productId=7219248#.WAPC3ZgrLIU

January 12-14:

AVMA Veterinary Leadership Conference in Chicago, IL

https://www.avma.org/Events/LeadershipConference/Pages/default.aspx

April 30 – May 4:

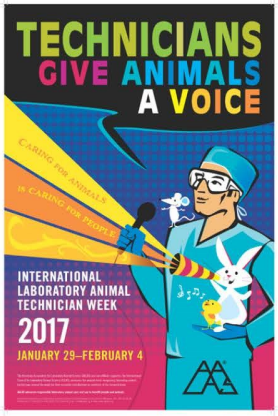
Institute for Laboratory Animal Management (ILAM) Classes in Memphis, TN

https:/www.aalas.org/education/ilam

Celebrate 2017 International Laboratory Animal Technician Week

Technicians
Give Animals A Voice

The annual celebration recognizes laboratory animal technicians for their contributions as essential members of the research team.



Order your Tech Week Supplies NOW!

12-00010. Tech Week Poster
Celebrate International Laboratory Animal Technician Week! The theme is "Technicians Give Animals a Voice." Display this eye-catchting 11×17″ poster throughout your facility and in public areas to promote the 2017 Tech Week event. Order early before supplies run out.
Limited quanitites of 50 per institution.
Price: Free

12-00045. Tech Week Magnet
Celebrate International Laboratory Animal Technican Week with these colorful round magnets that honor the work of laboratory animal technicians with this year's theme.
Limited quanities of 50 per institution.
Size: 2.5″ round magnet
Price: Free

12-00048. Backpack
This cinch-up style backpack is made of durable, eco-friendly, recyclable 80 GMS nonwoven polypropylene material. It has a spacious interior with a drawstring closure and adjustable soft nylon cord shoulder straps.
Size: 14″W × 16″H
Color: Navy with gray swoosh and white lettering.
Price: $3.00 Member/$4.00 Nonmember

12-00049. Key Chain
This handy plastic key chain has an embedded metal opener and an attached metal split ring. A convenient pull-out option function also makes a phone stand.
Color: White with red trim.
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Other recognition items are available to help show your appreciation for the achievements of your staff during the special week or any time of the year.
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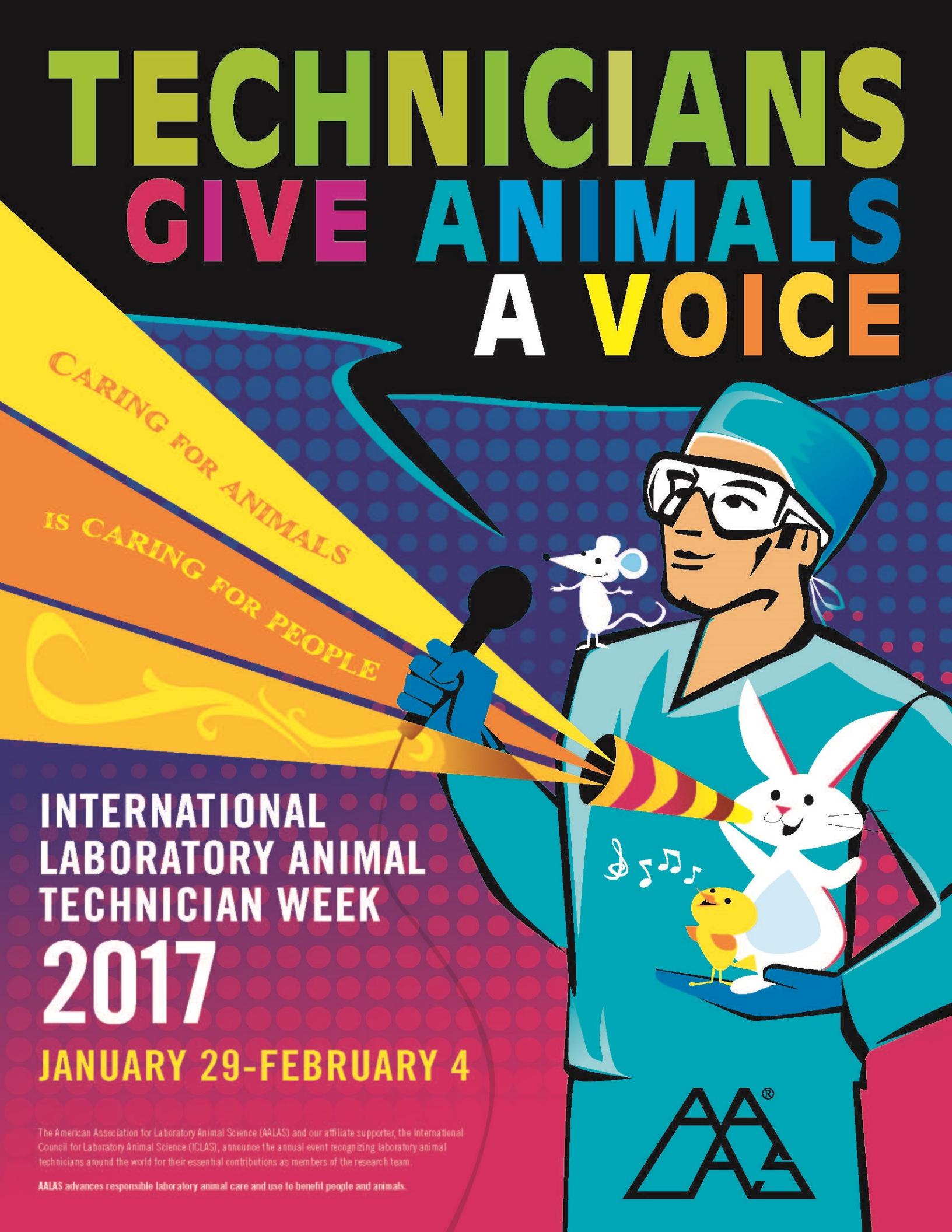
TECHNICIANS GIVE ANIMALS A VOICE



INTERNATIONAL LABORATORY ANIMAL TECHNICIAN WEEK

2017

JANUARY 29–FEBRUARY 4

The American Association for Laboratory Animal Science (AALAS) and our affiliate supporter, the International Council for Laboratory Animal Science (ICLAS), announce the annual event recognizing laboratory animal technicians around the world for their essential contributions as members of the research team.

AALAS advances responsible laboratory animal care and use to benefit people and animals.

Reigniting My Fire for Animal Research

By Lisa Stanislawczyk

When I started out after college working as an animal care technician at a contract research organization (CRO), I never thought I would want to perform the procedures I saw being done to the animals. I didn't want to make them uncomfortable or scared. I loved animals and had always wanted to be a vet (like so many others in the field of animal research). While working at the CRO I began to see the care and attention that the technicians took in performing these procedures and how careful they were to make the animals comfortable and at ease. I realized they too cared for the animals as much as I did and we all wanted nothing more than to take the best possible care of these animals.

Later, after 15 years in the animal research field, I found myself looking for a new role. I was always proud of what I did and left work each day with a sense of accomplishment. However, I was finding it difficult to find work, a common problem for so many in the world we live in today.

I realized that in order to stay in the field and get a good job I was going to have to move outside of my comfort zone, away from everything and everyone familiar. It was scary, but I moved to another part of the country, away from my family and all my friends, to pursue a new job. I was anxious and felt isolated. I came to the harsh realization that not everyone holds themselves or others to the same standards I had been taught, or was accustomed to. This realization **almost** made me stop doing the work that I had grown to enjoy and get a huge sense of accomplishment from.

I didn't quite know how to deal with what *I perceived* as poor animal welfare in my new job. This feeling was not from the technicians doing the work, they were doing the best they knew how with what they were taught. There just seemed to be a lack of knowledge of the regulations which one should have working in a vivarium. It was the management that needed to be held accountable. I spoke with the Chair of the Institutional Animal Care and Use Committee (IACUC) in order get a better understanding of what I felt was just not good research. After our conversation, I still felt there was a lack of accountability from the IACUC Committee. I was at a loss and felt drained and hopeless because there continued to be mistakes and mis-steps which could have been avoided.

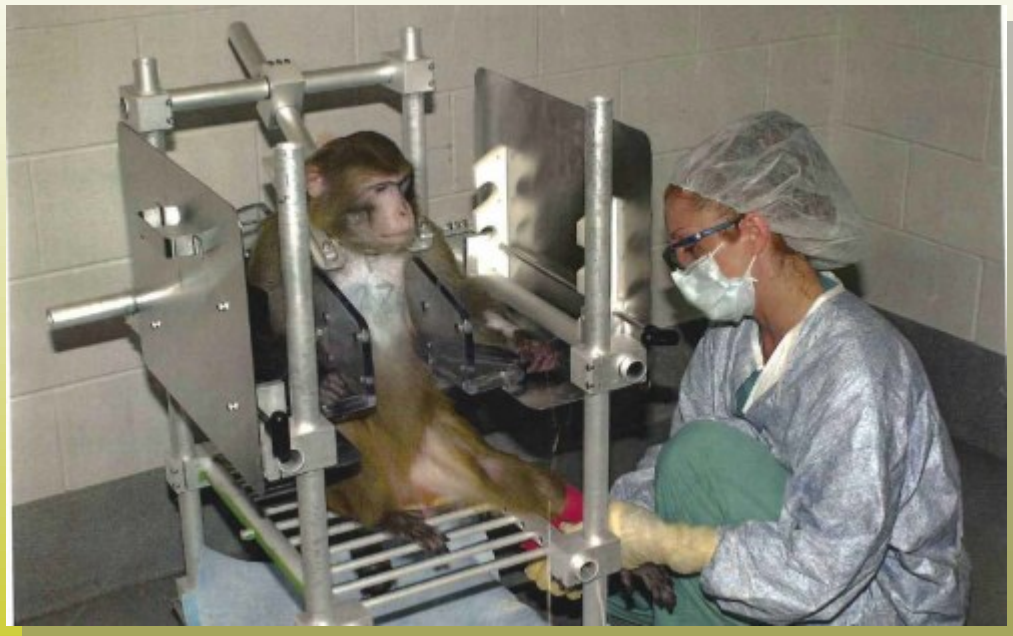
I spoke with the veterinarian and was told, "I didn't understand the field that I was in and I was too soft". I didn't believe that. I believed I was there to be an advocate for the animals in my charge. I was told there was not a "magic ball" to know outcomes of certain studies, I knew there were humane endpoints that should be followed. I did my best to make things better. We began a better training program so the people performing the procedures had a better understanding of the Animal Welfare Act and the Guide. We updated procedures and SOPs (standard operating procedures.)

It took its toll. I found myself working long hours to make sure the studies I was to oversee were executed correctly and at the same time educating the personnel working with me. I was exhausted and overworked. So were my technicians. I began to become so emotional about some of the things I was seeing that I would spend what free time I had at home, crying myself to sleep. Just thinking about it now, makes my eyes water. We all began seeing things that we could not bear any longer and more people began to have concerns and fill out whistleblower forms. It was heartbreaking and I just didn't feel like I could do it any longer. Then the day came, I was laid off. It was a blessing!

Thankfully my negative experience is not common and the facility I worked at was taken over by another company. I have heard that they are still overworked (many of us can sympathize) but that things regarding the animals have definitely improved.

I moved back to my family and friends. I needed the moral support from them. Still, I didn't want to go back to it. I was burnt out. I worked at a home improvement contracting office fielding phone calls and organizing the office. It just wasn't what I could see myself doing long term. I needed a challenge. I missed the animals. I held guilt for not doing more for them even though I still don't know what more I could have done at the time.

A previous boss of mine who happened to be a veterinarian reached out to me about a job. Again it was a big pharmaceutical company. I was skeptical but I needed to give it one last chance and it was only a temporary position. It was great to experience the investigators working with the animal care technicians to communicate how the animals did while on study and this empowered everyone to know exactly what was going on with each and every animal on a daily basis. The communication between all the investigators, technicians and veterinary staff truly improved the welfare of the animals. The veterinary staff really cared for the animals and the animal care technicians knew every animal's quirks, likes, and dislikes. Everyone would make sure the animals that were on study got some extra favorites whether it be food enrichment, human contact, or toys. The people there renewed my faith. I could see the ethical behaviors and integrity of each and every person there. It gave me the desire to stay in the industry. This was what I was accustomed to. I felt like I had a "place" again.



Once the temporary position was over, I moved to another company also working with the veterinary technical staff. There I was allowed to attend ILAM (Institute for Laboratory Animal Management).

It is a 2 year program and the information, relationships, and contacts you come away with are immeasurable. I shared my story with others I met there (from all over the world) and I realized we all shared in the desire to deeply care for the animals. We go to work every day to make sure everyone does their best to take care of every need of all the animals in their charge. For some time, I have passively been in the industry, not really wanting to be a part of all the external committees and public outreach opportunities available. After attending ILAM, all that changed. Experiencing the love and desire to improve and do better within our industry and making connections and friendships with people with this common thread has re-ignited my passion for the industry. My company encourages people to innovate and strive for better animal welfare. I am so proud to be a part of a program that has refined techniques performed on multiple species to make it easier for both the animals and the technicians. This is how it should be. This is the industry we are in. Change is key. Once again I am so proud of what I do and the program I am a part of everyday. I flourish when someone asks me what I do, instead of talking vaguely so they won't understand or want to hear more about it. I am happy to explain why what we do is so important and necessary.

We make miracles happen and improve the lives of humans and animals every day! This is what we do for a living! This is why people and their pets are living longer, happier lives. This is the reason I am proud to be in animal research. I urge my fellow technicians to speak out, be proud, and get involved explaining what you do and why you do it!

*This guest post is written by **Lisa Stanislawczyk**, a Veterinary Scientist at a pharmaceutical company. She plays a key role in ensuring the standards of animal care are always improving at her institution. Having been introduced to Speaking of Research through a committee member, Lisa kindly agreed to share her experiences. In this post, Lisa explains her passion for innovation in the field of animal welfare and her experiences, positive and negative, in delivering animal care at numerous institutions in the US. If you would like to write for Speaking of Research please contact us at https://speakingofresearch.com/contact-us/.*

As seen on:
www.speakingofresearch.com/2016/10/18/reigniting-my-fire-for-animal-research/

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NABR's Long-Time President Announces Retirement

After serving 37 years as NABR's first and only President, Frankie Trull has announced her retirement, effective December 31, 2016. "With mixed emotions I informed the NABR Board of Directors yesterday that I plan to retire at year's end. The animal research issue at times can be challenging, but I have always believed deeply in our mission. It has been an exciting and interesting career and has allowed me to work with caring, accomplished and committed people. For that, I am most grateful."

During her tenure, NABR played a key role in the 1985 Amendments to the Animal Welfare Act, and the passage of both the 1991 Animal Enterprise Protection Act and the 2006 Animal Enterprise Terrorism Act. In 2002, she also developed and implemented the strategy to exempt rats, mice and birds from the Animal Welfare Act. "I am most proud of NABR's record on Capitol Hill. NABR has never suffered a legislative defeat and has successfully implemented every one of the research community's legislative initiatives affecting animal research. Without outstanding NABR staff and the cooperation and participation of the NABR members these accomplishments would not have been possible."

Trull offered the following remarks to the NABR Board, "It has been my privilege to represent a community committed to improving the lives of both people and animals through the alleviation of suffering. I hope in some small way, my work at NABR has made a difference in this mission".

Frankie plans to spend time travelling with friends and enjoying her Virginia farm with her cats, dogs, horses and cows. If you'd like to send Frankie well wishes, please email her at ftrull@nabr.org.

Matthew Bailey Voted NABR's New President

At NABR's annual Board meeting on September 7, 2016, the Board of Directors elected Matt Bailey NABR's new President, effective January 1, 2017. Matt has been with NABR since 2005 and has served as Executive Vice President since 2015. Originally from Arkansas, Matt's Washington career began in 1996, and during that time he has served in roles in the Executive Branch and the Legislative Branch alongside both Democrats and Republicans. After serving as a congressional liaison for the U.S. Department of Commerce's National Institutes of Standards and Technology, Mr. Bailey joined NABR in part to assist with the effort to pass the 2006 Animal Enterprise Terrorism Act. For more than a decade, Mr. Bailey has worked diligently to educate policy makers about the irreplaceable value of animal research and has been instrumental in the steady growth of NABR.

Bailey offered the following remarks to the NABR board, "A decade at NABR has allowed me to meet people across the spectrum, most notably, those who are suffering and those who are seeking cures."

He added, "As an impassioned advocate for science, I share Frankie's long-held assertion that disease knows no political affiliation. It is my sincere hope that in this new role I can play a small but important part in assisting the medical research community with its mission to develop much needed treatments and cures for people and their pets."

"Please join me in congratulating Frankie on her retirement and thanking her for her unparalleled leadership and immeasurable contributions to the advancement of biomedical research over the last 37 years."

FOUNDATION FOR BIOMEDICAL RESEARCH

The Ways Animal Research Helps Animals

A four-part blog series by the Foundation for Biomedical Research

How Animal Research Helps Livestock

By Macallan Penberthy

Despite having always lived in a city, I am surprisingly enthusiastic about farms. After spending hours cleaning sheep's wool and learning how to properly milk cows as a child, I feel just as comfortable in a haystack as on a crowded urban street. However, the care and health of agricultural animals is far more complicated than most realize and animal research plays a key role in the wellbeing of animals on a farm.

Farming and animal husbandry require space, time, energy, and money. Just like our pets, farm animals have many specific housing, care, and health needs. From behavioral studies that maximize animal welfare, to the study of different diets, to tests that determine the effectiveness of medications, animal research has contributed greatly to the wellbeing of livestock. Let's take a closer look at some of these developments.

Housing

According to the National Research Council (NRC), "Animals should be housed with a goal of maximizing species-specific behaviors and minimizing stress-induced behaviors." However, before the welfare significance of an animal's behavior can be determined, researchers must understand the cause of the behavior – and this requires animal research. By studying the internal and external motivation behind animal behaviors, researchers glean information that helps farmers fulfill the behavioral welfare needs of the animals in their care.

Research of animal behavior – a field of study known as ethology – can, for example, help farmers design barns that are more comfortable for animals. Often these tests are conducted by providing animals with multiple options and observing which environment they most prefer. A pioneering study of this kind determined that chickens prefer fine gauge wire floors, rather than metal mesh ones. Such studies can also determine which toys, snacks, and environmental enrichment activities animals prefer, thus improving the overall health and wellbeing of the animals.

Care

When someone says they are taking care of their health, it generally means they are exercising regularly and eating right. The same is true for farm animals.

As a general rule, exercise is correlated with better health. A study in dairy cows revealed that daily walks led to fewer leg problems, lower incidence of mastitis, and less calving-related disorders, compared to cows kept in tie stalls. Another study, this time with chickens, determined that taller cages with raised perches, allowing for more movement, resulted in greater bone length, wing strength, and foot health.

Health, however, is a complex concept, and also involves nutrition. For humans, vast quantities of information – perhaps too much – are available regarding proper nutrition. However, livestock have very different digestive systems and different nutritional requirements. For instance, cows have four stomachs instead of one, so animal studies are required to better understand their digestion. Researchers at the EPA farm in Nevada operated on a cow named Big Sam to create a fistula, or passageway, between one of the cow's stomachs and the outside of his body. The fistula does not hurt Big Sam nor does it disrupt his normal behavior; it can be closed with a plug. He is now a valuable research resource for farmers who must care for cattle and feed them properly. Such animal research improves the health of the cattle on our farms.

Health

Farm animals get sick too, but it is much harder to take a half-ton horse to the veterinarian than it is to take your average house pet. That is why farm veterinarians often come to the animal instead of the other way around. And they, of course, need effective treatments to care for their patients on such "house calls". Many of the medications for farm animals are similar to ones used in humans. For example the antibiotic penicillin, which was developed through research in mice, is used to treat infections in cows. Other medicines, such as ionophores – used to treat a common parasitic poultry disease called coccidiosis – are created solely for usage in livestock. Animal research makes possible the medicines our farm animals need.

Like people, farm animals are administered vaccines when they are born to keep them from getting sick. As animals on farms come in contact with a variety of diseases and pests, vaccines are a critical part of their wellbeing. Numbering 19 billion worldwide, chickens are commonly exposed to Fowl Pox – also known as Avian Pox. Thankfully, despite there being no cure, an effective live-virus vaccine has been developed through research in mice and is readily available for farmers to give their chicks.

Animal research has benefited farming through studies of livestock productivity, housing, nutrition, and disease. As the human population continues to increase, more and more animals will be necessary to meet a growing demand for food. Animal research will help to make this possible by providing for livestock's needs – such as regular exercise, nutritious food, proper shelter, and effective medication when they get sick – to ensure that they are safe and healthy.

As seen on: https://fbresearch.org/animal-research-helps-livestock/

How Animal Research Helps Endangered Species

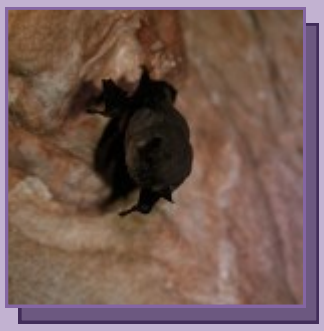
By Susan Szuch

Endangerment and extinction are impacting several species of animals globally. From deforestation and urbanization, to poaching, pollution, and incurable disease, many argue we humans bear some responsibility and have a moral duty to help animals from becoming endangered or extinct. Whether the research is examining illnesses or studying reproduction to assist with breeding, animal research is one avenue by which scientists are helping to protect endangered animals.

EEHV and Elephants

Asian elephants, both in captivity and in the wild, are highly susceptible to a deadly strain of the herpes virus called EEHV, which can kill young elephants in a matter of days. However, researchers at Baylor College of Medicine are working to learn more about the virus to save elephants in zoos and in the wild. Studies in mice and rabbits are examining antibody responses to EEHV proteins, which are important for developing diagnostic tools and treatments for affected elephants. In June, they successfully sequenced the virus' genome, which will help researchers better understand the disease. With this increased knowledge, scientists can move toward the development of an EEHV vaccine. Such a vaccine would help both endangered Asian elephants in the wild facing EEHV, as well as those in zoos.

White-Nose Syndrome and Bats

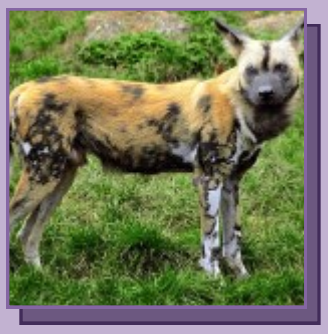


A destructive fungus is responsible for wiping out entire bat colonies while they hibernate. Called white-nose syndrome (WNS) for the way bats' muzzles and wings become coated in white fuzz, it affects various bat species, including both the endangered gray bat and the Indiana bat. In 2011, researchers were able to pinpoint the cause of WNS by exposing 15 healthy brown bats to the fungus. Previously, researchers thought only animals with dysfunctional immune systems could be affected by fungal infections. But this new information about the fungal cause of WNS led to a significant finding that could save bat colonies throughout North America. Because of animal research, scientists now have a better handle on how to treat WNS to prevent bat populations from further decline.

Nonhuman Primates and Ebola

Humans haven't been the only primates affected by an Ebola outbreak. In 1994, roughly a quarter of the members of a wild chimpanzee community died of the disease. From 2002 to 2003, another study showed a massive die-off of gorillas in the Lossi Sanctuary in the Republic of Congo, with 5,000 killed by Ebola. Fortunately, in 2014, researchers at the University of Cambridge were able to test an Ebola vaccine on a group of captive chimpanzees. The study was an immense success, saving the lives of these critically endangered primates and giving researchers hope that more conservation-related vaccines will soon be developed. Animal research has and will undoubtedly continue to play a vital role in the development of lifesaving vaccines for both people and animals.

Reproductive Technology



Animal research is also helping to prevent the extinction of endangered species through advanced reproductive techniques. For example, research into assistive reproductive technology – ranging from *in vitro* fertilization to cloning – creates the potential for endangered species to be bred in captivity and then released into the wild. The National Zoological Park in Washington, D.C., has such programs for endangered cats and endangered canids. It is also creating a genome resource bank to protect and preserve biodiversity. Understanding the physiology of endangered species and improving conservation technology will be critical to preventing further endangerment and extinction.

Animal research plays a significant role in helping endangered animal populations. From assistive reproductive technology to vaccines for Ebola, animal research is greatly benefitting species that may otherwise disappear due to disease or man's interference with the natural, delicate balance of the world's ecosystem.

As seen on https://fbresearch.org/animal-research-helps-endangered-species/

How Animal Research Helps Wildlife

By Susan Szuch

Did you know the nation's wildlife play an important role in everything from our ecosystem to the economy? The delicate balance required for wildlife to flourish can easily be upset by disease or pollution. So it is incredibly important to protect our wildlife population. Let's take a look at how animal research helps preserve and protect wildlife in the United States.

Sylvatic Plague and Prairie Dogs

Prairie dog colonies can harbor sylvatic plague, a highly infectious disease caused by bacteria spread through flea bites. The same bacteria can cause bubonic and pneumonic plague in humans, and similar symptoms in animals. Sylvatic plague has the potential to wipe out up to 90 percent of prairie dog colonies. However, recent efforts to combat plague in prairie dog populations have led to an effective vaccine through studies in mice. Currently, the vaccine is administered in blocks of food left at prairie dog burrows, but the National Wildlife Health Center plans to formulate the vaccine-laden bait to make it administrable by plane or drone.

Lyme Disease and White-Footed Mice, Deer

The pathogen that causes Lyme disease can be found in white-footed mice, small rodents, and birds. Yet, deer ticks prefer their eponymous host when possible, so areas with large deer populations are at a higher risk for the spread of Lyme disease. New research efforts could prevent the pathogen's transfer from mouse to tick, something that would help both people and deer.

Residents of Nantucket, Massachusetts, for instance, are in need of such research to help tackle the rampant Lyme disease in their town. With one of the highest Lyme disease infection rates in the country, the town also has a "soft spot for deer," according to a New York Times article. Kevin Esvelt of the Massachusetts Institute of Technology could have a solution. He has devised a novel way to genetically engineer mice to become immune to a protein in the tick's saliva, preventing the transmission of Lyme disease. In the future, this research could help reduce the spread of Lyme disease –protecting both people and deer.

Microplastics and Fish

Poor health of wildlife is often a warning sign that something in the environment has gone awry. Rachel Carson touched on this in her book *Silent Spring*. While we no longer use the carcinogenic pesticides she crusaded against, there is a new pollution worry – microplastics, such as the tiny beads found in products meant to exfoliate skin. Research in fish has shown that exposure to these tiny particles can alter the behavior of larval perch, making them less receptive to chemical signals warning them of predators. While it's been known that any sort of debris or pollution is bad for wildlife, this study shows the specific implications of such pollution: certain species of fish being threatened because of the behavior changes caused by the plastics. With this knowledge in mind, policy makers have banned the manufacture of non-biodegradable microplastics in many exfoliants and toothpastes, saving the lives of fish and their predators.

Whether it's uncovering the cause of diseases or preventing the spread of diseases, animal research is essential for safeguarding wildlife. And because people and animals are so fundamentally interconnected, when wildlife is able to thrive, so are we.

As seen on https://fbresearch.org/animal-research-helps-wildlife-2/

How Animal Research Helps Pets

By Susan Szuch

Emma, my pet beagle, was about a year old when my family adopted her. Initially, she seemed like a healthy dog, aside from some abandonment issues. At her first yearly checkup, though, we discovered she had heartworms.

Thankfully, there is an effective, arsenic-based treatment available for dogs with heartworms. And Emma is living a healthy life today because of research in lab beagles to develop it and ensure its safety.

Cancer and Pets

Neoplasia, or uncontrolled cell growth like in cancer, is the leading cause of death in adult dogs, according to a paper published in the Journal of Veterinary Internal Medicine. Cancer is less common in cats, though they, too, can develop tumors and blood disorders. Many of the cancers in cats and dogs are similar to the cancers affecting people. If you think about it, you realize our pets live in the same environments we do, so they are exposed to many of the same carcinogens and, therefore, develop similar cancers. Clinical trials with dogs and cats can offer a more accurate look at a drug's effectiveness in both our pets and ourselves. And the number of cancer trials with pets is on the rise, giving hope that both pets and people with cancer will see ever-improving treatment outcomes.

Medicines that Help Both People and Pets

Many medicines developed for human patients happily prove to be effective in dogs and/or cats. Dogs with anxiety respond well to fluoxetine hydrochloride, more commonly known as Prozac. Prozac was developed with the help of mice, rats and dogs. Rapamycin, a common anti-rejection drug given to organ recipients after transplantation, is being given to companion dogs to improve their heart health and extend their lives. Rapamycin was studied in rodents, pigs and primates and has proven to be a life-saving medicine for both people and pets. Cats with hyperthyroid disease are treated with radioiodine – a common treatment for human thyroid disease. It is also used to treat prostate cancer, intraocular (eye) melanoma, and carcinoid tumors in people. This is just a small sample of medicines that help both people and pets, as the disease-fighting properties and therapeutic benefits of medications often do not discriminate between species.

Vaccines and Pets

Vaccines are very important for ensuring the future health of puppies and kittens. Just as human infants and toddlers receive vaccines against childhood diseases in a doctor's office, our pets routinely receive vaccinations in the veterinary clinic. Rabies is dangerous to pets, as well as to humans, because it can be transmitted through animal bites. In 1885, Louis Pasteur developed a rabies vaccine with rabbits, which now protects both people and pets. But rabies isn't the only disease we vaccinate pets against – in the 1970s, canine parvovirus (often referred to as parvo) began affecting dogs. A highly contagious disease, most puppies under 5 months old that contracted the virus died. It wasn't until 1982 that a vaccine was developed, thanks to studies in laboratory dogs. And now countless companion dogs have benefitted from this vaccine.

Sometimes, the development of vaccines for pets can help humans too. Feline immunodeficiency virus (FIV) is very similar in structure to human immunodeficiency virus (HIV). Don't worry, though, cats cannot give us FIV nor can we give them HIV. FIV was discovered around the same time as HIV, and have similar risks of becoming an epidemic, as FIV is contagious to other cats. Thus, studies in FIV provide valuable information which could inform the development of an HIV vaccine.

From cancer treatments to vaccines, the undeniable truth is our pets are benefitting from the major contributions lab animals make to the research and discovery process.

As seen on https://fbresearch.org/animal-research-helps-pets/

Applications Available December 1st!

The GLAS Program provides competitive short-term research grants in the laboratory animal science field. Current AALAS members are invited to apply for one-year grants of ***up to $50,000*** (Standard Grant) or $7,500 (Small Grant). **The principal investigator (PI) must be an AALAS member** but Co-PIs need not be members. PIs are strongly encouraged to include collaboration with a research scientist in their proposals.

Examples of research interest are as follows: environmental conditions; housing and enrichment; pain and distress; health and welfare; euthanasia; and advancements in animal care and use. Refer to previous awards for examples of the kind of research supported.

The grant submission deadline is 11:59 pm CST February 1 of each year, and notifications of GLAS grant awards are sent by May 15.

New Research Findings

Morphine paradoxically prolongs neuropathic pain in rats by amplifying spinal NLRP3 inflammasome activation

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Peter M. Grace, Keith A. Strand, Erika L. Galer, Daniel J. Urban, Xiaohui Wang, Michael V. Baratta, Timothy J. Fabisiak, Nathan D. Anderson, Kejun Cheng, Lisa I. Greene, Debra Berkelhammer, Yingning Zhang, Amanda L. Ellis, Hang Hubert Yin, Serge Campeau, Kenner C. Rice, Bryan L. Roth, Steven F. Maier, and Linda R. Watkins

Abstract

Opioid use for pain management has dramatically increased, with little assessment of potential pathophysiological consequences for the primary pain condition. Here, a short course of morphine, starting 10 d after injury in male rats, paradoxically and remarkably doubled the duration of chronic constriction injury (CCI)-allodynia, months after morphine ceased. No such effect of opioids on neuropathic pain has previously been reported. Using pharmacologic and genetic approaches, we discovered that the initiation and maintenance of this multimonth prolongation of neuropathic pain was mediated by a previously unidentified mechanism for spinal cord and pain—namely, morphine-induced spinal NOD-like receptor protein 3 (NLRP3) inflammasomes and associated release of interleukin-1β (IL-1β). As spinal dorsal horn microglia expressed this signaling platform, these cells were selectively inhibited in vivo after transfection with a novel Designer Receptor Exclusively Activated by Designer Drugs (DREADD). Multiday treatment with the DREADD-specific ligand clozapine-*N*-oxide prevented and enduringly reversed morphine-induced persistent sensitization for weeks to months after cessation of clozapine-*N*-oxide. These data demonstrate both the critical importance of microglia and that maintenance of chronic pain created by early exposure to opioids can be disrupted, resetting pain to normal. These data also provide strong support for the recent "two-hit hypothesis" of microglial priming, leading to exaggerated reactivity after the second challenge, documented here in the context of nerve injury followed by morphine. This study predicts that prolonged pain is an unrealized and clinically concerning consequence of the abundant use of opioids in chronic pain.

As seen in PNAS: http://www.pnas.org/content/early/2016/05/25/1602070113.abstract?sid=233cedd3-eda6-46e1-8546-27f0e4066bea

‘Three-parent baby’ claim raises hopes — and ethical concerns

By Sara Reardon, *Nature News*

A reported world-first in fertility therapy — a baby boy conceived using a controversial technique that mixes DNA from three people — has made headlines across the world. But with no way of verifying the claim because the specialists behind the procedure will not release data until October, some researchers are questioning the ethics of the procedure. In particular, they ask why the US-based team behind the operation chose to carry it out in Mexico, a country with less-clear oversight of human-embryo modification than, for instance, the United Kingdom or the United States.

Researchers at the New Hope Fertility Center in New York City told *New Scientist* — which broke the news on 27 September — that they had conducted the procedure for a Jordanian couple, and that the baby boy was born in April. The team, led by John Zhang, a physician at the centre, is not due to present details until 19 October, at the American Society for Reproductive Medicine meeting in Salt Lake City, Utah, but it has published an abstract online with sparse information.

According to the abstract, the boy’s mother carries a rare disease called Leigh syndrome, a neurological disorder caused by faulty mitochondria, the cell’s energy-producing structures. The couple lost two children to the disease before asking for the clinic’s help.

In an attempt to create embryos without the mother’s faulty mitochondria, the clinic’s team transferred the nucleus of the mother’s egg cell to the egg of a donor with healthy mitochondria and its nucleus removed — a technique known as spindle nuclear transfer — and then fertilized it with the father’s sperm, the team reports in the abstract. Zhang’s team modified five embryos, one of which was implanted into the mother and survived to birth. That baby inherited nuclear DNA from both parents and mitochondrial DNA from the donor.

So the achievement of Zhang team’s, if verified, would represent the first child conceived using the spindle-transfer version of mitochondrial-replacement therapy (MRT). In the United States, MRT is in principle allowed, but requires review and approval by the US Food and Drug Administration (FDA). Last year, Congress banned the FDA from using federal funds to review proposals that would manipulate the genetics of human embryos — hamstringing the agency. Lawmakers seem poised to continue the funding ban into the 2017 fiscal year. The United Kingdom, meanwhile, decided last year to allow MRT under licence.

Among the unknowns is the possibility that the technique could transfer some diseased mitochondria from the mother into the donor egg along with the nucleus. According to Zhang’s abstract, 5% of the embryo’s mitochondrial DNA was the mother's, carried over along with the nucleus — but mitochondrial DNA samples taken from the baby after birth varied from tissue to tissue and suggested a level of faulty DNA that was, on average, 1.6%.

More concerning to some researchers is the fact that Zhang’s procedure was performed in Mexico. Zhang told *New Scientist* that “there are no rules” in Mexico. Legal scholar Rosario Isasi at the University of Miami in Florida says that there are laws governing the manipulation of human genes — but she adds that they are badly worded, and that there are exemptions that seem to be made for manipulations intended to cure deadly disease.

As seen on: http://www.nature.com/news/three-parent-baby-claim-raises-hopes-and-ethical-concerns-1.20698

DNA vaccines against Zika virus speed into clinical trials

By Chris Morrison, *Nature Reviews Drug Discovery*

By the end of 2016 at least two vaccines against Zika will have completed Phase I safety trials, marking the first significant clinical progress towards preventing transmission of the virus. Farthest along the development pathway are two competing DNA vaccines from the biotech company Inovio and the US National Institute of Allergy and Infectious Diseases (NIAID), showcasing the technology's potential advantages over traditional vaccine approaches.

Zika emerged as a threat in 2015, and in February 2016 the World Health Organization deemed it a public health emergency, highlighting a link between Zika infection and the devastating birth defect microcephaly. Despite the previous obscurity of the disease and funding shortfalls, industry and academia have been able to move extremely quickly to generate clinic-ready vaccine candidates. This is in part because Zika is closely related to other flaviviruses such as West Nile or Dengue for which vaccines already exist, and it illustrates industry's willingness to leap into a space where public health concerns and commercial opportunity overlap.

Although DNA vaccine technologies have been in development since the 1990s, no DNA vaccines have yet made it to market for human use owing to efficacy issues. Success against Zika could now pave the way for renewed interest. “I think the DNA vaccine platform is going to be a competitive platform not only for Zika but for any future vaccines,” says Anthony Fauci, the longtime director of the NIAID.

Industry and academia have also tapped other vaccine platforms for alternative candidates. The NIAID and collaborators at the Walter Reed Army Institute of Research, in Silver Spring, Maryland, USA, have entered an agreement with Sanofi Pasteur to develop a more traditional vaccine, a purified inactivated virus vaccine candidate. Fauci says that project should enter Phase I trials towards the end of 2016. The NIAID is also working with the Brazilian non-profit Butantan Institute, in São Paulo, on a live attenuated Zika vaccine based on chimeric vaccine technology successfully used to create a vaccine against the related Dengue virus.

The NIAID also announced in July that it will collaborate with GlaxoSmithKline (GSK) to develop a Zika vaccine built with a self-amplifying mRNA vaccine platform, a technology GSK acquired as part of its US$7 billion acquisition of Novartis's vaccine business in 2014. This genetic vaccine could offer advantages over its DNA vaccine competition. Whereas DNA vaccines need to get into the nucleus of the cell, mRNA vaccines only need to get into the cytoplasm, says Ripley Ballou, Vice-President Vaccines at GSK. “The hurdle for doing that is much lower,” he contends, and can be achieved with use of a nanoparticle.

GSK's mRNA vaccines use the RNA of an alphavirus as a starting point and swap out the virus's protein coat for a viral antigen sequence of interest. Inside the cell, the vaccines behave like viruses, replicating, becoming double-stranded, pumping out antigen and triggering immune responses. As a new technology, it will face additional regulatory scrutiny, Ballou admits. “I would love to see it in the clinic by the beginning of 2017, but we have to have those conversations” with regulators, he cautions.

“I don't want to be overconfident but most of us who are involved with this feel reasonably certain that we will get a good vaccine for Zika,” says Fauci. “The critical issue is to do it as quickly, safely and efficiently as possible so that if the outbreak continues or spreads to other regions of the world we'll have a vaccine that was proved in a good clinical trial to be safe and effective.”

As seen on: http://www.nature.com/nrd/journal/v15/n8/full/nrd.2016.159.html

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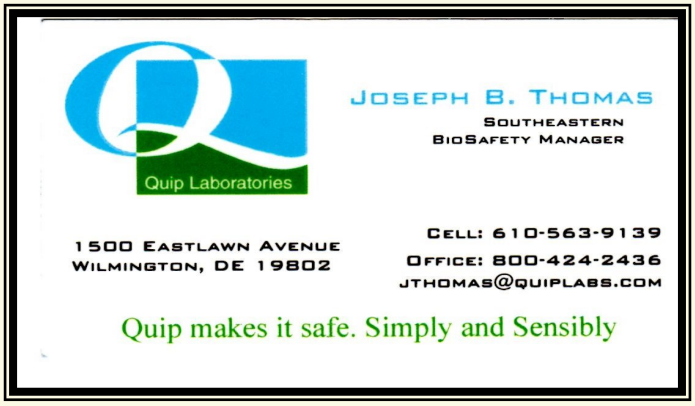

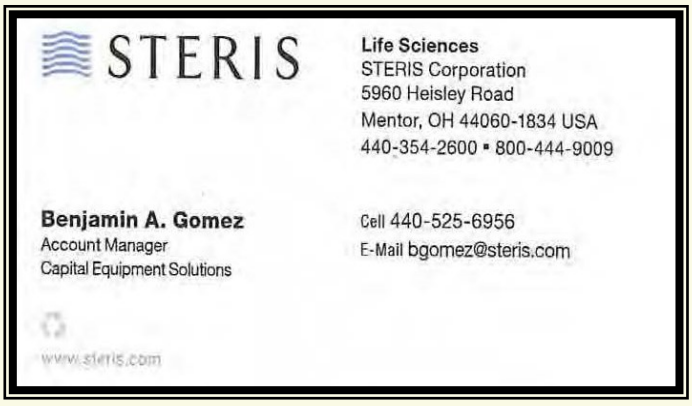

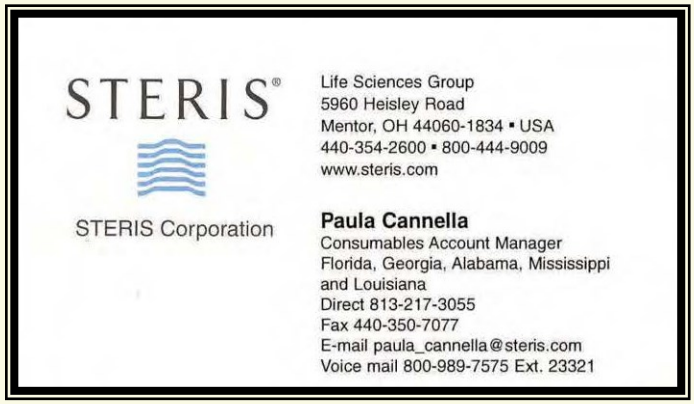

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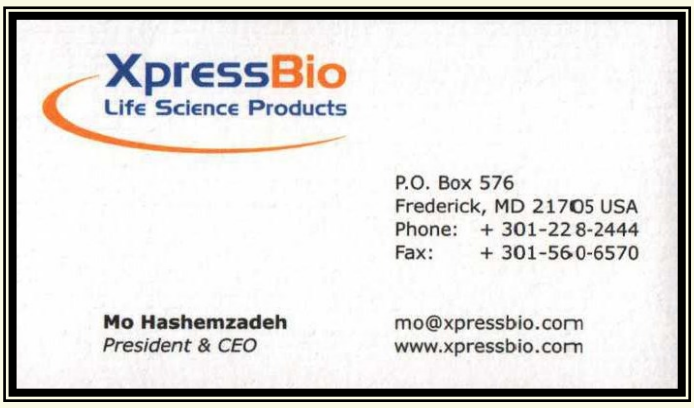

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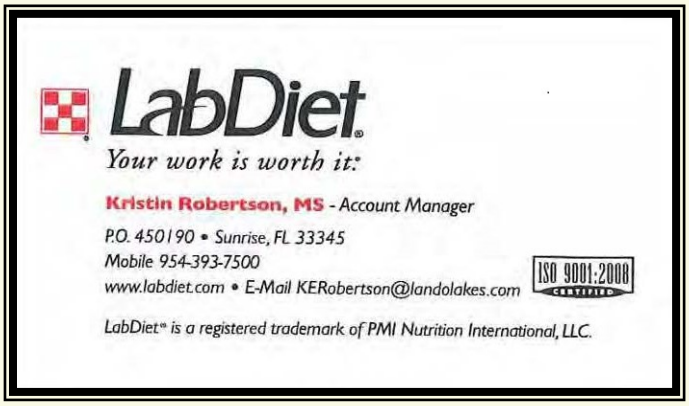

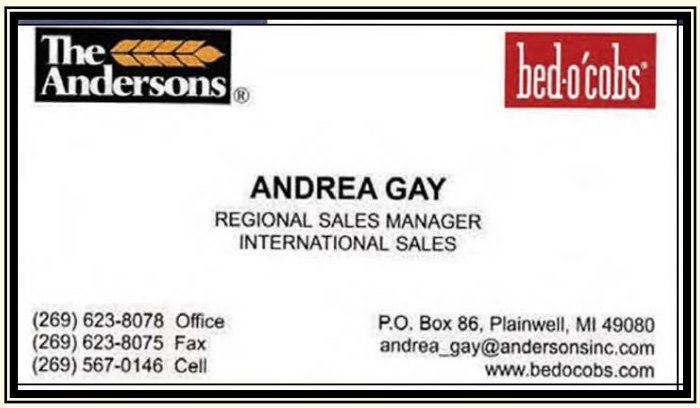

Lab Supplies

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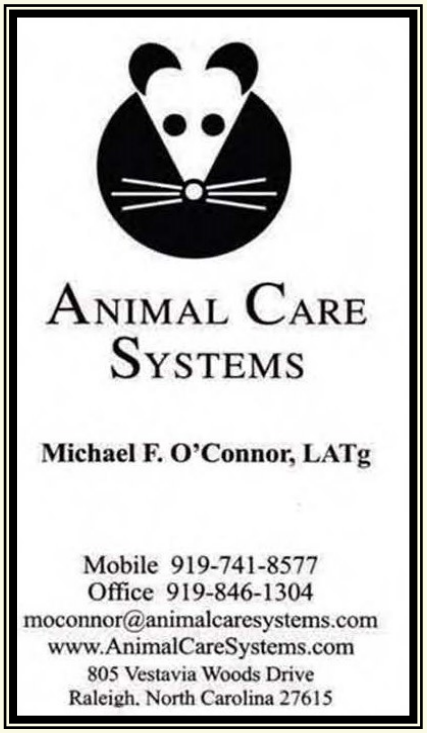

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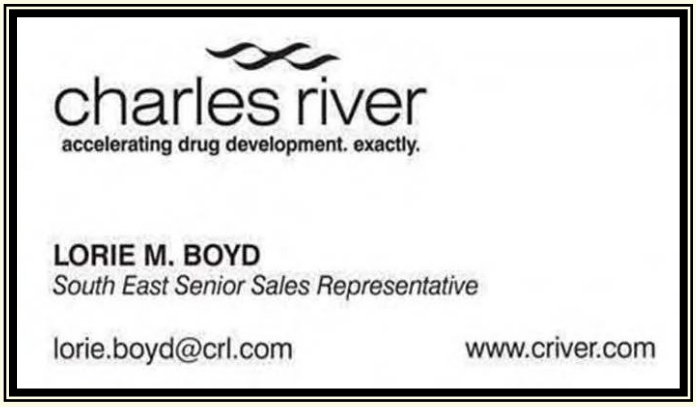

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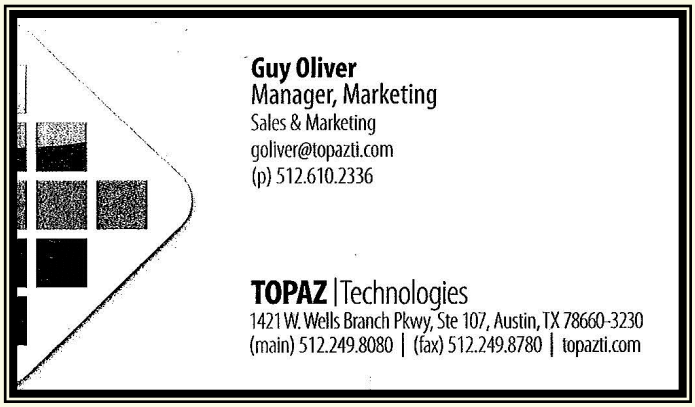

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