For the Greater Good

Featuring

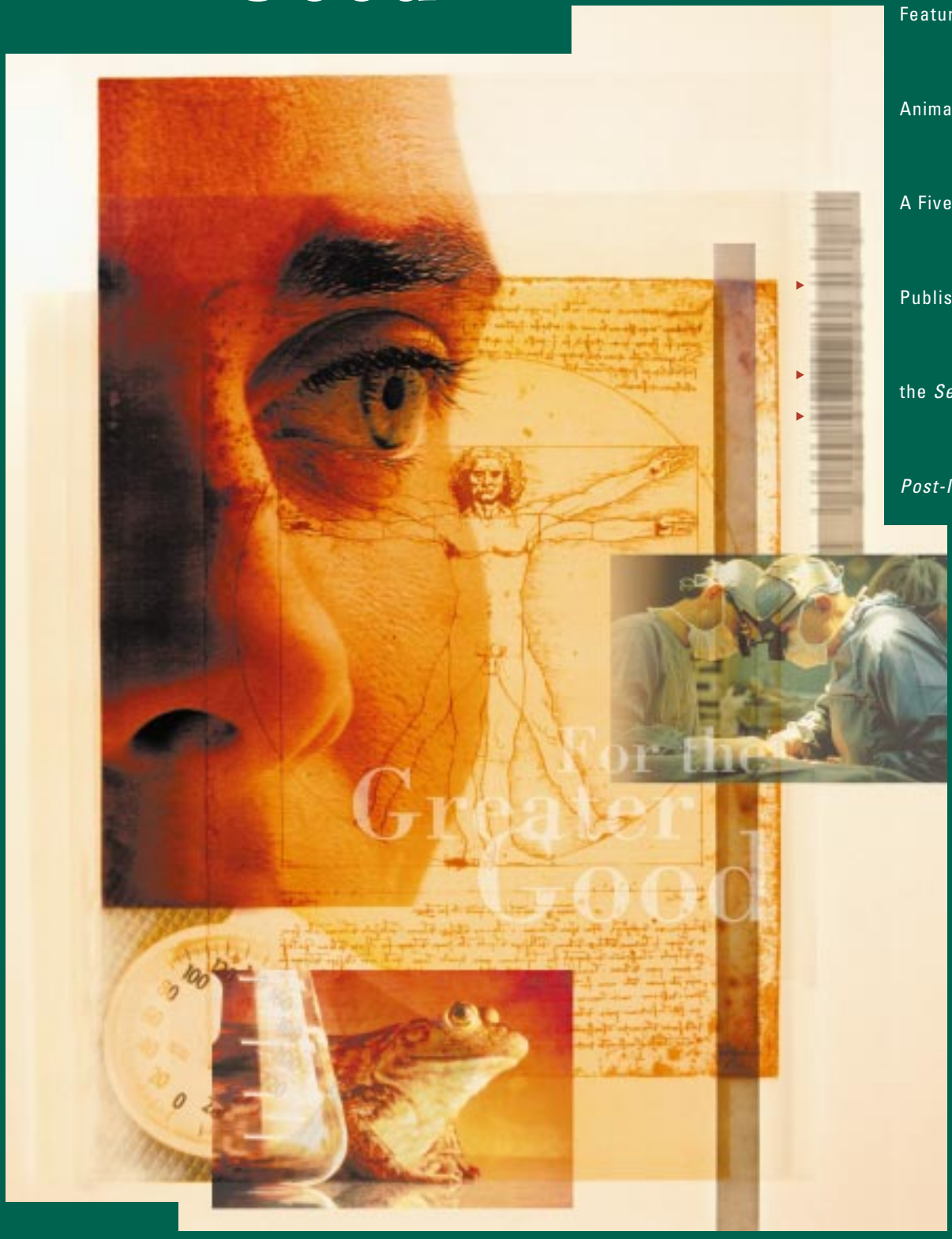
Animals & Research:

A Five-Part Series

Published by

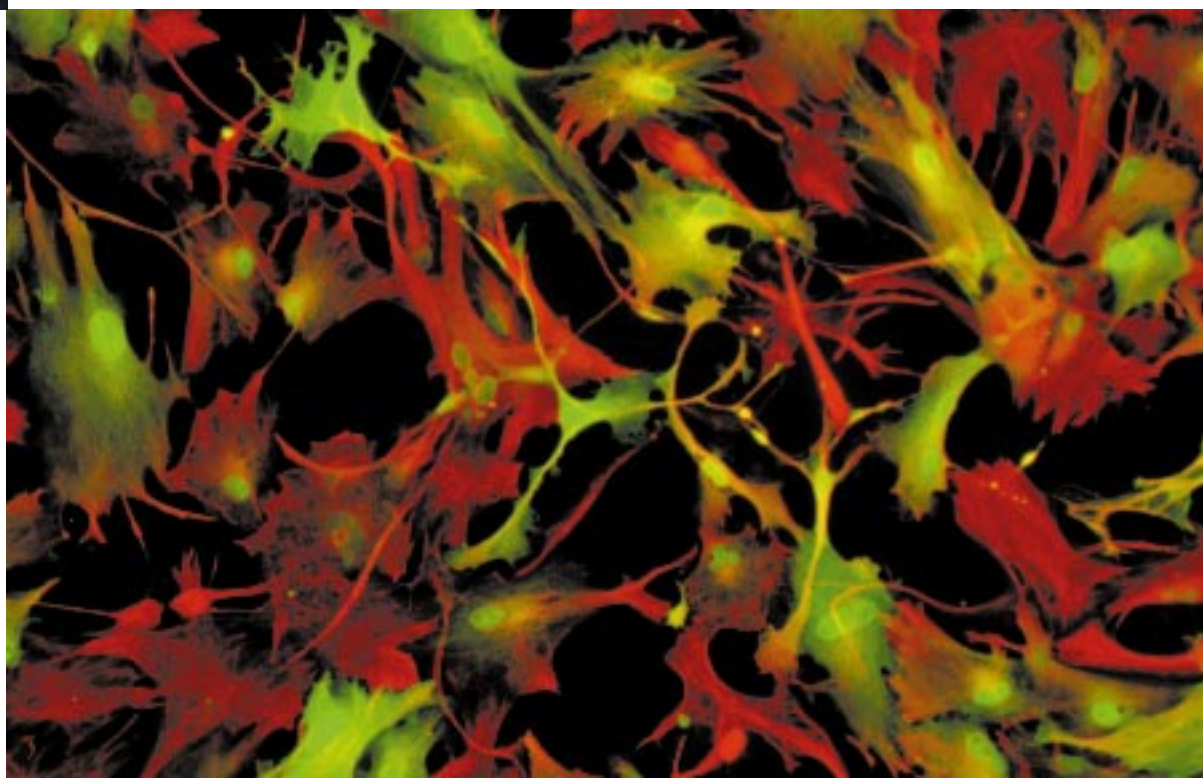
the *Seattle*

Post-Intelligencer



WASHINGTON ASSOCIATION for

BIOMEDICAL RESEARCH



Cells isolated from chicken retinas and grown in culture are used to understand the development of the eye and to screen for factors that promote cell survival.

Dear Reader:

On the morning of April 16, 2000, readers of the *Seattle Post-Intelligencer (P-I)* opened their newspapers to discover that the front page of the popular Focus section was dominated by the introduction of an unprecedented five-part series on Animals & Research. In a rare opportunity, the general public had the chance to hear the unfiltered voices of the men and women whose daily work involves the use of animal models in medical research. The series was titled "For the Greater Good."

Each featured article portrays one author's personal stories of people and animals whose lives have been improved or saved by medical breakthroughs made possible by animal research. We will remember these stories; they could be about our own families, friends and well-loved pets. They are stories about hope and triumph, obstacles and realities. With the publication of this booklet, members of the media, policy makers, researchers and their staffs, doctors, veterinarians, patients, neighbors, teachers and students across the country will have the chance to read these words.

The series begins with Dr. Joseph Eschbach describing conversations with his patients about how animal-based research contributes to their medical care; it concludes with laboratory animal veterinarian Cindy Pekow detailing the careful attention given by staff members to every animal in her facility. We recognize and thank all five authors for opening up their worlds to the majority of citizens who may never walk the halls of a teaching hospital or a research institution.

For nearly four months after the series was printed, the *P-I* continued to receive and publish several Letters to the Editor and opinion pieces commenting on the articles. Many of these will be featured in the Teaching Guide that will accompany this booklet, scheduled for release in Spring 2001. E-mail messages of support for the series came from individuals across the country and from as far away as Japan and the United Kingdom.

The series was edited by Samuel R. Sperry, then Editorial Page Associate Editor at the *P-I*. After its publication, members of our Board of Directors asked Sperry what he believed the series accomplished. His response was forthright:

"I am convinced popular support is out there for investing in research — even if in some areas that support is dormant. Every state and region in the country can duplicate the experience of the Washington Association for Biomedical Research and the *Seattle Post-Intelligencer*. It can be done. It can be popularized. The story needs to be told."

On behalf of the WABR Board of Directors and with special thanks to the Esther A. and Joseph Klingenstein Fund and the AALAS Foundation, we are proud to present this booklet. Take it into your communities. Initiate the conversation. Tell your stories.

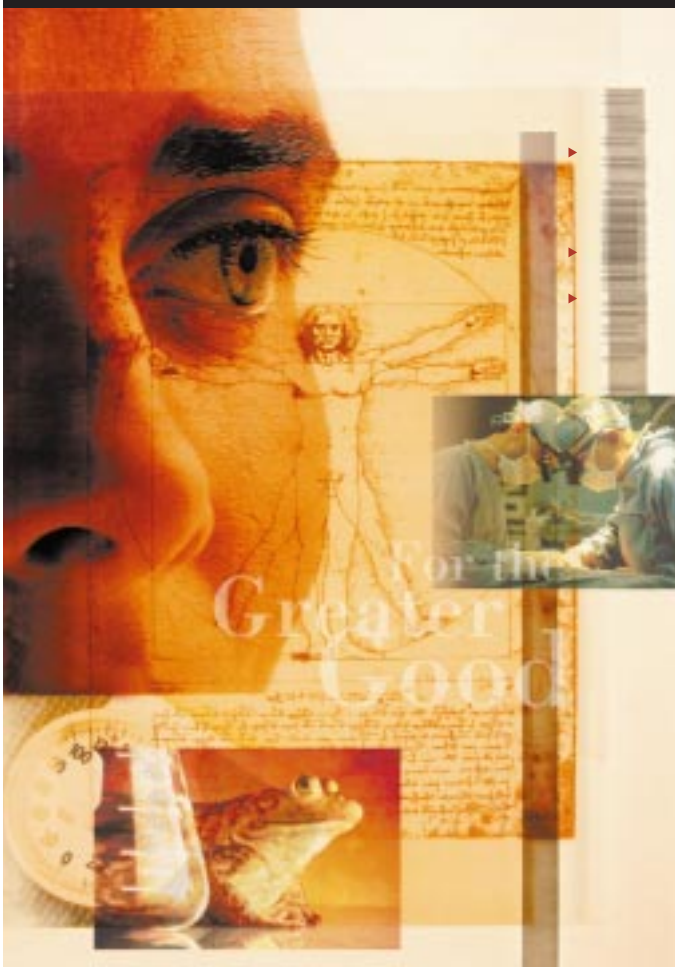
Susan Adler

Susan B. Adler
Executive Director
Washington Association for Biomedical Research

"I am convinced popular support is out there for investing in research — even if in some areas that support is dormant. Every state and region in the country can duplicate the experience of the Washington Association for Biomedical Research and the *Seattle Post-Intelligencer*. It can be done. It can be popularized. The story needs to be told."

Samuel R. Sperry

Quotes from Nobel Laureates



"There is no way we can forego, at the present time, the use of laboratory animals in biomedical research. We owe them the unprecedented advances that have occurred in this field in the last 50 years. Our own success is due to the fact that we determined the mechanism of regulation of a crucial enzyme involved in carbohydrate metabolism obtained from rabbit muscle. As luck would have it, this process turned out to be the most prevalent mechanism by which cellular events are regulated.

Sure, today and as much as possible, one tries to work on cell cultures. These studies have taught us most of what we know on molecular biology and genetic engineering, cell signaling, etc. But they can only go so far. No way could we find a cure for cancer or genetic diseases such as muscular dystrophy, multiple sclerosis, cystic fibrosis or diabetes if we did not have the use of laboratory animals."

EDWIN G. KREBS AND EDMOND H. FISCHER
NOBEL PRIZE WINNERS — 1992

Edwin G. Krebs and Edmond H. Fischer received the Nobel Prize for Physiology or Medicine in 1992 for discovering the basic mechanisms for protein regulation in cells. Drs. Krebs and Fischer later found that mistakes in this regulation can cause uncontrolled cell growth and result in cancer. The knowledge gained from these experiments, which were done using rabbit muscle cells, has led to the development of treatments for cancer, diabetes, and other diseases.

"Perhaps in no other field has animal research been as important as in the transplantation of organs and tissues. Data from the laboratory may provide useful information, but in the final analysis there is no substitute for the complex environment of the living organism. Thousands of patients are living today with transplants of kidney, heart, liver, or bone marrow who would not be living if it had not been for animal research."

"What many people do not understand is that animal research can also benefit the very animals participating in the studies. Just as in your doctor's office, if you go into a veterinarian's office or hospital you will find the same drugs and technologies developed through animal research."

E. Donnall Thomas
Nobel Prize Winner — 1990

"Animal experimentation has been essential to the development of all cardiac surgery, transplantation surgery, joint replacements and all vaccinations. The world is not flat."

Joseph E. Murray
Nobel Prize Winner — 1990

The Nobel Prize for Physiology or Medicine was awarded jointly to E. Donnall Thomas and Joseph E. Murray in 1990 for their discoveries concerning organ and cell transplantation in the treatment of human disease.

Dr. Murray was inspired in his research after seeing so many injured soldiers die while he was working as a combat doctor during World War II. He is credited with performing the first successful human organ transplant—a kidney—a few years after perfecting the surgery in dogs. With the knowledge he gained by using dogs, he uncovered ways to overcome the body's tendency to reject a donated organ. His work led to successful transplants of other organs, such as liver, pancreas, and heart. Today, more than 20,000 people each year are given a chance for a longer, healthier life because of organ transplants.

Dr. Thomas discovered how to successfully transplant bone marrow, the tissue found inside bones that makes blood cells, as a treatment for cancer in humans. He first perfected the technique in dogs. Although the procedure was once thought to be impossible by most scientists and doctors, today bone marrow transplants cure literally thousands of cases of leukemia and other diseases in patients throughout the world.

"The medicines of tomorrow will depend upon research being done today, for which animal experimentation is essential. Ignore the need for that research and we shall lose the cures that we are entitled to expect in the next 50 years for illnesses that afflict hundreds of millions of people such as cancer, heart disease, viral diseases, malaria, schistosomiasis and sickle cell anemia."

Sir John R. Vane
Nobel Prize Winner — 1982

Sir J.R. Vane shared the Nobel Prize for Physiology or Medicine in 1982 with S.K. Bergstrom and B.I. Samuelsson for their discoveries concerning prostaglandins and related biologically active substances. Prostaglandins are substances released by injured cells that stimulate pain responses and, thereby, help to form blood clots that can lead to heart attacks and strokes. Using rabbits and dogs, Dr. Vane found that aspirin prevents prostaglandins from causing these pain responses; this led to an understanding of why aspirin reduces pain and helps to prevent heart attacks.

"The *P-I* series proves that scientists can communicate effectively. Even people who disagreed read every last word; all were surprised by its relevance. The articles succeeded in raising the bar for this discussion to the highest level."

Samuel R. Sperry

Seattle Post-Intelligencer

Sunday, April 16, 2000

FOCUS

ANIMALS & RESEARCH

INTRODUCTION

INTRODUCTION BY SAMUEL R. SPERRY, *P-I* ASSOCIATE EDITOR/EDITORIAL PAGE

Most of what we know about using animals in medical research comes from people who oppose it. Today the *Post-Intelligencer* begins a five-part series looking at the issue from the other side.

Today and this week in the Opinion section, Northwest physicians and researchers discuss why, despite vehement objections, there's value in using animals in medical research.

This is a controversial topic for many reasons.

For one thing, most of us have or have had pets. Stories of how animals are abused, whether they are true or embellished, spark our anger and sympathy.

Some in society want to end the practice of using animals for medical research. Others want to grant to animals the same rights in law enjoyed by humans. In the extreme, still others believe violence is morally justified in the name of animal rights.

Last year, animal rights activists damaged a Washington State University research facility in Puyallup. At the University of Minnesota, a research venture into Alzheimer's disease that had been in progress for decades was damaged by animal rights activists; complex work was lost forever.

The animal rights movement is well funded. People for the Ethical Treatment of Animals, for example, had a $14 million budget in 1998. Other animal rights groups also enjoy budgets in the millions of dollars.

Use of animals in medical research is well supported with both public and private money. But scientists and physicians have been reluctant to join the debate over use of animals, largely because so many in society accept the use of animals to promote human health and sophisticated advances in medical treatments. And most scientists would prefer to do their research rather than devote time to public relations work promoting their endeavors.

The *P-I* is publishing this series of contributed essays so readers can hear firsthand from the men and women who work in the field. It was put together through the offices of Susan Adler, Executive Director of the Washington Association for Biomedical Research. More information about the organization may be obtained at the association's Web site: www.wabr.org

Seattle Post-Intelligencer

Sunday, April 16, 2000

OP-ED

ANIMALS & RESEARCH

PART ONE OF A FIVE-PART SERIES

For the greater good

Unlocking the secrets of genetic disease through animal research.

By JOSEPH W. ESCHBACH

DUANE HOFFMANN

In my office and at the hospital, I diagnose and treat a myriad of illnesses — some life threatening, others not so serious. In performing these tasks, I need to keep up with the advances that make it possible to treat these illnesses. I also need to talk with my patients about the medical procedures, surgery and medicines I recommend and/or prescribe and the research that makes them safe and effective.

A young patient, Bobby, recently came to my office with a fever and complaints of ear pain. The diagnosis - a middle-ear infection - is common, particularly in children, and accounts for many a missed school day. While the infection can usually be cured with an antibiotic, in the future most children will not get this infection because of a recently developed vaccine.

This vaccine was first shown to be effective and safe in studies involving rats, guinea pigs and chinchillas. I told Bobby's mother that this vaccine, which immunizes infants and children against the organism that causes the infection, would soon be available - in time to protect his baby sister. Not only will this vaccine decrease the incidence of recurring infections, it also will reduce the need for taking antibiotics.

I tell Mrs. D, who once had serious chest pain, that the device used to open up the blockage in her heart arteries was first tested and perfected in dog studies. During their training, the surgeons who performed her subsequent bypass surgery were able to practice and perfect their surgical skills on dogs, before operating on humans. Growing pressure by animal rights groups has recently caused some medical schools to close their dog laboratories. For these future surgeons, their first introduction to performing complex procedures will be on patients. I am concerned about how this will affect the future of these people.

Animal models have been the keys to unlocking the secrets of many genetic diseases. The genetic makeup of animals and humans is similar, which has allowed scientists to study diseases in animals with genetic defects similar to those in humans.

One day, Jim came in complaining that he spontaneously fell asleep under the

Seattle Post-Intelligencer

Sunday, April 16, 2000

most embarrassing situations: at work, with guests and while watching his favorite football team. A neurological exam confirmed that he had narcolepsy, a disease caused by a defective version of the gene called hypocretin receptor 2.

Much of what we know about narcolepsy comes from studies on a breed of dogs that has a similar genetic defect resulting in comparable symptoms.

These dogs were also used to initially test the effectiveness of certain drug therapies, including the one I prescribed to Jim. This drug alone is ultimately expected to help the 250,000 Americans with narcolepsy, as well as dogs with the disorder.

The flu has been a major cause of days lost from work and even death in young and old. Jackie recently came to the office with a fever of 102 degrees and a bad cough; she was feeling horrible. Examination and initial laboratory tests suggested she had the flu and, while waiting for confirmation of viral tests, she was prescribed a new "anti-viral" antibiotic designed specifically to combat influenza. This drug is the result of years of testing, first in rats and rabbits, and then in humans, and represents a major advance against this illness.

Sarah has diabetes. The insulin she requires allows her to live a relatively normal life; until recently, the insulin was derived solely from the pancreas glands of pigs and cows. Recent advances in recombinant molecular biology techniques have made human insulin available, as well.

Insulin-dependent diabetes was uniformly fatal before the 1920s when Drs. Frederick G. Banting and Charles H. Best, through experiments in dogs, proved that insulin corrected the disorder. On the horizon, thanks to experiments in several animal species, is the hope that the specific pancreas cells that produce insulin (islet cells) can be transplanted into any diabetic and cure the condition, eliminate the need for insulin shots and eliminate long-term complications.

There are many other stories I could tell about how my patients have benefited from animal research. The hypertension medication, the ultrasound technology and the organ transplant techniques and immunological methods were all made possible because of experiments using animals.

Does research on animals actually teach us anything about disease in humans?

Some patients express concern for these animals and ask why they need to be used for research. I reassure them that researchers must comply with strict federal regulations requiring care and use protocols be carefully reviewed by an animal care committee, whose membership must include an experienced scientist, a veterinarian and a member of the general public. Alternatives to animals are used whenever possible (cell and tissue cultures and computer modeling), but these findings ultimately need to be confirmed in a complex intact animal.

I also try to put the use of research animals into perspective. More than 95 percent of all animals used for research in the United States are laboratory-bred rats and mice. Contrary to popular belief, dogs, cats and primates together account for only about 1 percent of all the animals used in research. Data from October 1997 through September 1998 indicate that about 100,000 dogs and cats were used in research in that year, which compares with between 2 million to 7 million unwanted dogs and cats killed annually in the nation's pounds, as reported by the Humane Society of the United States.

Bobby and his sister; Jackie; Jim; and Sarah, as well as every American alive today, have benefited in some way from animal research. However, many other illnesses still are in need of cures, such as cancer, AIDS, Alzheimer's and others. It is the promise of animal research that provides our hopes for having longer, healthier lives.

Joseph W. Eschbach, M.D.
Dr. Eschbach has been in the private practice of nephrology for 35 years. He is a devoted physician who believes strongly in empowering his patients with knowledge and understanding. For more than two decades he has been working to solve the problem of anemia in dialysis patients. Dr. Eschbach discovered that erythropoietin (EPO), an essential hormone that stimulates the production of red blood cells, was far below normal levels in many kidney dialysis patients. He felt that if anemic patients could be given this vital hormone, their anemia would be corrected; thus improving their health; he initially proved his theory correct by giving EPO to anemic sheep with kidney failure. Dr. Eschbach is a member of the Institute of Medicine of the National Academy of Sciences and has been President of the Board of Trustees of the NW Kidney Centers and the King County Medical Society. He currently serves as President of the Washington Association for Biomedical Research.

Seattle Post-Intelligencer

Tuesday, April 18, 2000

OP-ED

ANIMALS & RESEARCH

PART TWO OF A FIVE-PART SERIES

Animals benefit from research

Many animal studies are conducted in order to discover and develop alternatives to animal use.

By PATRICK R. GAVIN

PULLMAN — For some time now we've been caring for "Hope" at the Washington State University College of Veterinary Medicine teaching hospital. She's a mixed-breed dog whose owner shot her in the head in February and left her for dead.

How does research on animals help animals?

Before she ever came to WSU, a good Samaritan in Montana found her at a public fishing access and got her to emergency care. Anesthetics, analgesics, antibiotics, radiographs, sutures, stomach tubes, dressings, bandages, liquefied food, intravenous lines and solutions were employed by competent veterinary care to keep her alive.

The owner eventually was arrested and convicted of a misdemeanor charge of animal cruelty and was forced to pay a $200 fine and give up Hope to the courts. After that, she was brought to our care for reconstructive surgery. Here we've employed many of the same treatments mentioned above, as well as others in order to not only keep Hope alive, but to heal her to the best quality of life we can provide for her and her new adoptive owners.

One criticism often leveled at biomedical researchers is that if humans so desperately need biomedical research for advancement, they should perform the work on humans, not animals. My question is — what about the animals that need biomedical research?

Almost completely ignored in animal rights debates are the benefits of humans using non-human animals in research for the exclusive benefit of other non-human animals. In Hope's case, every human intervention that has touched her had to be developed and tested on animals to ensure its safety and effectiveness before it entered general veterinary use.

DUANE HOFFMANN

From vaccines to veterinary surgical techniques; from improved behavior to better housing; in matters of nutrition, reproduction, habitat restoration and conservation, as well as in public health and environmental studies, the examples of biomedical research benefiting wild and domesticated animals are overwhelmingly positive and widespread.

Many animal studies are conducted in order to discover and develop alternatives to animal use, to prove their efficacy and to advance the science.

At WSU, for example, I am a veterinary radiation oncologist who studies the best way to treat cancer in animals using radiation therapy. Our research regularly uses client-owned animals with existing cancers that need care to help advance the science for other animals that need care. Healing and research can walk hand in hand.

Currently, there is no non-living model that can help these animals or the scores of others that will follow them to our care. Were it not for the animal scientists, wildlife professionals, veterinary researchers and clinicians that have dedicated their lives to benefit non-human animals, the animals that suffer from disease, starvation, injury and illness would be left without a voice for their health and well-being.

Despite what we do, how we do it and the benefits animals derive from it, it's not enough. For the extremist, any use of animals by humans is wrong, even if it benefits other animals.

Most people, however, understand the need for animal research in many areas, in particular when it benefits animals. They also understand funding limitations and priorities that include studying sentinel species and naturally occurring animal diseases that also occur in humans.

As scientists and veterinarians, we are not above public scrutiny of our activities. We have a profound responsibility and an economic incentive to pursue optimal animal health, alternatives, non-living models, computer simulation, isolated tissue cultures, reduced animal use, optimal care and, when necessary, the quick and humane death of an animal. As these alternatives are discovered and refined, they are quickly adopted as the new standards for study.

Seattle Post-Intelligencer

Tuesday, April 18, 2000

Again, history is replete with examples where this has occurred. Kidney transplants for animals were unheard of less than a decade ago. Now, thanks to the benefits of biomedical research and clinical practice in animals and in humans, veterinary colleagues at the University of California at Davis have perfected this life-saving surgery for animals.

Equally as demanding a responsibility to the public is the assurance that the work we do with animals, for animals, is conducted in a scientifically sound, cost-effective and efficacious manner. This reduces overall the need for duplicating studies and the number of animals involved. At the same time, it requires that a sufficient number of initial test subjects be used to demonstrate statistical significance where it exists or, more important, where it doesn't.

Professionals have no vested interest in keeping costly animal colonies. In the case of livestock, for example, doing away with experimental herds where appropriate can save thousands of dollars a day, money that can be applied toward additional findings and further advancement.

Past uses of animals often are not acceptable to the general public today. These changes come in part through researchers themselves and the non-employee public voices that sit on animal-care and -use committees required at every institution receiving federal research funding.

Changes in research also come by way of the conscientious efforts of state and federal regulators as well as private-industry agencies such as the American Association for the Accreditation of Laboratory Animal Care. AAALAC is an independent body that has requirements for animal care and use that supercede the nation's state and federal legal requirements for animal care and use.

But all of this means nothing to the vocal few who oppose all human interactions with animals and who condemn modern civilization as an unnatural aberration. It's an easy argument to make — the argument of the spoiler.

Fortunately, most people see through this facade and instead see a voiceless world of animals that need humans as much as we need them.

Patrick R. Gavin, D.V.M., Ph.D.
Dr. Gavin is professor and chairman of Veterinary Clinical Sciences and the College of Veterinary Medicine at Washington State University, Pullman. He is a veterinary radiation oncologist — a specialist who provides treatment for and investigates methods of treating cancer in animals with radiation therapy. Dr. Gavin has worked closely with human radiation oncologists at the University of Washington, sharing results and information to advance the service of cancer therapy in human and non-human species.

Seattle Post-Intelligencer

Wednesday, April 19, 2000

OP-ED

ANIMALS & RESEARCH

PART THREE OF A FIVE-PART SERIES

Alternatives in medical breakthroughs

Experiments help us see how risky a compound is for use in people.

By LAWRENCE COREY
SPECIAL TO THE
POST-INTELLIGENCER

The past 20 years have brought remarkable progress in the development of therapies and vaccines for treating viruses.

When I began doing research, there were only two anti-viral medications available, and both were rarely used. Now there are 14 licensed anti-viral drugs for treatment of human immunodeficiency virus (HIV) infection alone.

DUANE HOFFMANN

One needs only to look at a picture of Magic Johnson — who has tested positive for the AIDS virus — during a visit to a central Seattle Starbucks to appreciate what these drugs have done to help people.

In the United States, Acquired Immune Deficiency Syndrome, or AIDS, which is the disease caused by HIV infection, has gone from a rapidly fatal disease to one that can be slowed significantly by drug therapy. Likewise, anti-viral drugs for herpes virus infections have reduced suffering from lesions causes by herpes simplex, and they have markedly reduced death from viral pneumonia in transplant patients and viral-related transplant rejection.

Similarly, we now have a vaccine against cancer. Hepatitis B vaccine prevents hepatitis B and liver cancer, its major complication.

How has this progress been possible, and what role do research animals and alternative forms of research play in this progress? Do we need animals at all?

In many ways the latter half of the 1900s can be described as the time of development and widespread use of animals in research. Mice were the mainstays of this type of research, to help us understand what caused the cancer and how to stop it. The past 20 years have seen a reduction in the number of animals used and the development and use of alternatives, including elegant cell culture models and computer models.

There have been some real changes. The cancer-causing potential of drugs is now tested first in bacteria developed for this purpose and only then in mice or rats. And nearly all testing of cosmetics in animals has stopped. But we still do use animals. Why?

The popular press would have us think that medical breakthroughs come from giant "insightful leaps." In fact, dramatic improvements in medical therapy are made in small, incremental steps by large teams of scientists. But this process is not short. Nor is it smooth or predictable. For all the novel therapies I am aware of, experiments of a candidate antiviral or vaccine showed a glimmer of an effect in the test tube, but not enough to move to the next stage.

Those compounds that work in a test tube — in vitro — must then pass the test of activity and tolerance — called toxicity testing — in a whole animal. More than 90 percent of compounds that have activity in the test tube against infection or tumor cells flunk animal toxicity studies. There are no substitutes for testing in animals to measure the potential harm of new drugs. These experiments help us see how risky a compound is for use in people, and at what dose.

Why can't we use alternative methods instead of using animals for research?

You may recall the recent gene therapy case of Jessie, who died of organ failure when an experimental virus was used, and we later learned that animal tolerance to this virus was low. This tragic case reminds us that when a treatment does cause poisonous effects in animals, extreme caution is warranted. Animal studies are even more crucial for developing medicines for young infants and children because their rapidly growing cells make them more susceptible to some toxic drugs.

What about computers? Biochemists have developed computer models to look at relationships between drugs and their targets in an effort to build better keys to fit the

Seattle Post-Intelligencer

Wednesday, April 19, 2000

molecular locks. However, predictions based on those models are imperfect at best.

Let's look at a recent example of two drugs I prescribe every day for my patients: acyclovir and ganciclovir. I remember the first time I used the acyclovir medication on an infant with neonatal herpes. The previous infants I had seen had died. This one miraculously started to get better four days into the treatment, something I had never seen before.

Now, acyclovir is the most-used antiviral drug in the world — a very effective treatment for genital herpes and neonatal herpes. Hundreds of my patients take it daily.

Ganciclovir was discovered two years after acyclovir and, in the test tube, looked like a better compound. At the molecular level, the compounds were almost identical. Yet in animals the two were very different. Ganciclovir killed bone marrow cells; acyclovir did not. Ganciclovir caused sterility in animals; acyclovir did not. Human results matched the animal tests.

Acyclovir is one of the safest drugs we have in my field; people can take it daily for years. Ganciclovir has a role in treating transplant and HIV-infected people. It is a life-saving and eyesight-saving drug, yet its strong toxicity limit its use to those with severe illnesses. All this was defined by prudent animal testing.

How about the role of animals in vaccine tests? Vaccines protect people from disease by stopping infections before they can wreak their havoc. Vaccines ultimately are tested directly in people, so why not skip animals?

Let's take as an example the development of a vaccine against HIV to prevent AIDS, which is devastating the African and Asian continents with 16,000 new cases a day and continues to spread throughout the world unchecked.

Because vaccines work by stimulating the body's immune system to fight back against the virus, there is no way to test in cells, or on a computer, how the vaccine will work in the whole animal. New vaccines are given to experimental animals, followed by a "challenge" with the infectious agent one wants to prevent. These animal model experiments define whether novel vaccines are safe enough to initiate clinical trials.

More important, they show whether the vaccine is good enough to justify large-scale testing, which may involve tens of thousands of people and cost tens of millions of dollars. Non-human primates, especially macaque monkeys, are critical for the development of an HIV vaccine.

The work to translate results from the monkey models to vaccines that can go into humans involves intense communication between those of us involved in human vaccine development and those laboratory researchers involved in developing candidate vaccines.

The studies do not substitute for vaccine testing in humans. Without the tests, and without this dialogue, many entirely ineffective vaccines might be tested in people without any benefit, wasting money and time. Does it not seem wise, then, to know what a vaccine does in a primate challenge study before we administer it to thousands of people?

We can and do use alternatives at each step in our process of drug and vaccine discovery and testing, to refine our choices before we go into animals and people. The reality of developing novel therapies and vaccines for human disease is that prudent use of animal resources is a necessary part of the process of medical research to improve human and animal health.

Lawrence Corey, M.D.
Dr. Corey is head of the University of Washington's Virology Division and the Fred Hutchinson Cancer Research Center's Program in Infectious Diseases. He is also a professor of medicine and laboratory medicine at the University of Washington. Research in Dr. Corey's laboratories includes studies dealing with the pathogenesis, prevention and treatment of HIV and herpes virus infections. His labs have also pioneered novel tests for diagnosing and monitoring therapies for viral infections. Dr. Corey is also an infectious disease attending physician at the Fred Hutchinson Cancer Research and a member of the editorial board for the New England Journal of Medicine. He is a fellow of the Infectious Diseases Society of America and is a member of the American Society for Clinical Investigation, American Epidemiological Society, and American Association of Physicians.

Seattle Post-Intelligencer

Thursday, April 20, 2000

OP-ED

ANIMALS & RESEARCH

PART FOUR OF A FIVE-PART SERIES

Ethics of using animals in research

Using animals for biomedical research evokes strong emotions among those on both sides of the issue.

By DELMAS LUEDKE
SPECIAL TO THE
POST-INTELLIGENCER

People who favor the use of animals in research cite the many benefits that have accrued to us as individuals and as a society. Among the gains are many antibiotics, vaccines, erythropoietin for the treatment of renal failure and certain anemias, the development of chemotherapies that have become standard treatment for combating or in some cases eradicating cancer and many of the procedures that have paved the way for organ transplants in human beings. The research also has improved the health and quality of life for animals.

On the other hand, those who oppose the use of any animals for research are concerned that such animals are exposed to too much suffering and that there are better alternatives than animal research.

It is unfortunate that the debate gets cast in such a way that it implies that one group cares about animals and another group does not. It is not an issue of caring or not caring. Rather, the issue is how to reduce total suffering for humans and animals. There is strong evidence that without animal research and the modern medicines stemming from that research, overall suffering from disease in this world would be greater, not less.

However, animals should not be exploited or abused in the process of research. To address that valid concern, research facilities are now required to have an Institutional Animal Care and Use Committee to oversee animal research. The IACUC is made up of research experts, licensed veterinarians and members of the community at large.

I have been a member of such a committee at a local research institution. We monitored each research protocol regarding the use, care and handling of animals. The researcher had to provide evidence that the proposed research had not already been done and that the proposed protocol couldn't be carried out in a scientifically valid way without using live animals.

DUANE HOFFMANN

These committees limit the number of animals used to a minimum required to reasonably test the hypothesis of the study. If an animal is dying, veterinarians determine when euthanasia is indicated in order to minimize suffering. The IACUC reviews each research protocol in detail every six months, in addition to the continuous monitoring done by veterinarians.

In a world without disease or suffering, research using animals (or humans) would not be necessary. But until that day, such research allows scientists to systematically study the diseases that plague us.

Using animals in carefully controlled and monitored studies not only can achieve this goal, but also minimizes total suffering. Many potential drugs never reach human testing because they are found to be toxic in animal tests. Animal research also is not just about humans using animals for the benefit of humans. If animal testing confirms the potential benefits and safety of a drug or procedure, then the research moves into the realm of testing on humans. The big difference, of course, is that the consent of the individual is required in the case of human subjects.

It is true that the consent of the animal for participation cannot be obtained. But that is true for most human-animal relationships. The issue may not be so much consent as of respect. From our sacred writings we are taught that all life is sacred. Therefore, all life is to be respected and honored. When a family pauses to pray before eating, they are in essence respecting the source from which came the food, and if the meal contains meat, respecting the life of the animal that made the meal possible.

Some contend that it is morally superior for humans to consume only plants and the products of living animals, such as milk; however, it remains morally acceptable in

Seattle Post-Intelligencer

Thursday, April 20, 2000

Should animals be used to develop and test new drugs and treatments?

our society to consume meat for food. If it is acceptable to consume meat for food, it is morally acceptable to utilize animals for research for the purpose of alleviating greater suffering.

The real value of animal research is seen in the lives of people who directly benefit from this research. I have been fortunate to experience with the parents of an 18-month-old child the joy and relief at seeing her go from certain death to having the opportunity to develop her life as a healthy, productive adult because of a bone marrow transplant. I've shared the gratitude of a young parent who is no longer confined to the demands of a dialysis machine three times a week. As a result of a kidney transplant, she can now care and provide for her family. That has been a sacred experience.

Beyond the personal satisfactions that I have experienced in my ministry, we as a society are enriched because of the new life and improved quality of the lives of people benefiting from animal research.

Animals used for research purposes ought never be treated with disregard, nor should they be used frivolously. We must continue to honor all life and continue to use our best judgments and scientific techniques in minimizing the suffering of those animals (and humans) that make it possible, through appropriate research, to combat the medical problems that confront us.

Delmas L. Luedke, M Div.
Reverend Luedke has been a parish pastor for twelve years. In this position, he deals daily with parishioners who are facing chronic and acute life-threatening illnesses. In addition, Reverend Luedke has served on an Institutional Animal Care and Use Committee. During the last thirteen years, his work in the hospital setting has involved him on the hospital Ethics Committee and the hospital Institutional Review Board. As a hospital chaplain and educator, he regularly works with patients and families who are facing life-threatening illnesses and must make decisions about appropriate care and treatment.

Seattle Post-Intelligencer

Friday, April 21, 2000

OP-ED

ANIMALS & RESEARCH

PART FIVE OF A FIVE-PART SERIES

Animals get good care

I am a veterinarian, and caring for laboratory animals is my chosen field. Good care is the norm in research facilities.

By CYNTHIA PEKOW

Although polls say most Americans accept that research animals are needed to advance medical science, many people feel squeamish thinking about animals used in experimentation. Bad press and allegations of poor care — and worse — worry us.

In 1966, Life magazine featured dogs enduring horrid conditions while waiting to be sold to research labs. Public outcry after the article appeared led to passage of the federal Animal Welfare Act. This law and other regulations address our concerns by specifying the care required for research animals, as well as the conditions under which they may be acquired and used for medical research.

My job is also part of the structure dictated by the Animal Welfare Act. I am a veterinarian, and caring for laboratory animals is my chosen field.

DUANE HOFFMANN

Good care is the norm in research animal facilities. People tend to focus on dogs or monkeys, but it is mice and rats that account for well over 90 percent of all research animals.

Rodents generally are housed in small groups in plastic "shoebox" units, lined with absorbent bedding. Rodent caging is becoming increasingly high-tech. In the newest units, each cage individually receives filtered airflow, to prevent disease and to eliminate waste moisture. Yet we also add low-tech accouterments, such as cotton material for rodents to shred and nest in, and plastic tubes for them to climb through and hide in.

Caging and husbandry originally designed to meet researchers' needs now are being designed to better meet the animals' needs. An analogy can be made to children's hospital wards of years ago, designed for efficiency in keeping things readily sanitized. Scant consideration was paid to how the stark environment might affect the psychological well-being of the patients. Today, children's hospital rooms are more cheerfully decorated, with places for parents to stay at bedside. We have made the connection with health or healing and emotional comfort.

So too, with animals. Healthy, unstressed animals and good science go hand in hand. Preference testing allows the animals to show us which features they want in their environment. For example, a monkey might choose vertical space in preference to greater floor area, while a guinea pig may choose additional hiding places.

How are laboratory animals treated?

Beyond cage conditions, the attention and care provided the animals are what make their environment humane. Stasia is a research technician who consistently can be found holding, cuddling and providing treats for her rats. When one of her animals has undergone a procedure, she provides it with slices of fresh fruit afterward.

Nancy provides an exercise period for the rabbits she tends each day, just as she does for her pets at home. These staff members are a big part of assuring the humane care of research animals.

The people who interact daily with the animals are the first to pick up on even subtle changes, and alert veterinary staff. Lee, with seven years on the job, can be counted on to detect a mouse with ruffled fur, or a rabbit with a slightly changed disposition. My job includes ensuring that animal care staff is provided instruction in husbandry, as well as in the biology of the animals and the reasons for their use. The caretakers' training, knowledge and concern are the animals' first allies.

Dedicated people staff research animal facilities. There is no glamour in daily animal care. Caretaker pay, also far from glamorous, doesn't keep people in the business. Maintaining a compassionate outlook while caring for animals whose lives will be taken exerts an emotional toll. One can liken the work to that of nursing in a cancer ward or animal pound.

So what are the rewards? They begin with the sense of purpose and the consolation that come from seeing and interacting with the animals, knowing you play a key part in their well-being, and, less tangibly,

Seattle Post-Intelligencer

Friday, April 21, 2000

knowing that the research can contribute powerfully to advances in medical care for animals and people. Lee feels good to have discovered that providing a nylon chew toy to mice stops fighting within their cage. Stasia has found her rats prefer baked yam as a treat, and likes to know that she can give something extra to the animals that provide her research data.

Outside our workplaces, we face the social unease of having a politically incorrect career. We are hesitant to share our workday failures or triumphs with those outside our field. When you tell a person that you work with animals, the initial response is often that you must be a warm, fuzzy, sympathetic person. When you reveal that the animals are of the research variety, the warm, fuzzy view is commonly replaced by a cold, prickly image. How can you DO that? is a frequent response. The answer is: How can we NOT do that? We are trained to provide quality care, we are always looking to improve animal well being and we care about our charges. Who better to do this necessary work?

We would rejoice if scientific advances could make animals superfluous to medical research. People like to think that cells grown in flasks or sophisticated computer programs can replace animals. These helpful modalities do form our first steps in the research process and guide our experimental focus. A heartening example is Corrositex, a tissue-culture-based alternative to skin testing. Physiome Sciences, Inc. offers a computer program that predicts drug effects on cardiac muscle, so that only the most promising compounds are tested on animals.

But cells grown outside a body, and computer programs, cannot yet predict the complex interactions that occur in an entire living system. Replacement of animals is not here yet, nor is it coming very soon.

For the time being, we refine our techniques to minimize pain and distress, improve the animals housing and train the caretakers. Most of all, we are aware that the use of animals is a privilege, and we care for them accordingly.

Cynthia Pekow, D.V.M.
Dr. Pekow is certified as a specialist in laboratory animal medicine and works at Seattle's Veterans Affairs Puget Sound Health Care System and the University of Washington. Dr. Pekow is active in the American Association for Laboratory Animal Science (AALAS), and will assume the position of AALAS vice-president-elect in November 2000; she also participates in the local Washington Branch of AALAS (past president, board member). She serves on the Washington Association for Biomedical Research Board of Directors and is a popular member of its Speakers' Bureau. In 1996, she received an award from incurably ill for Animal Research (iiFAR) for her efforts in educating the public about the important role of animals in biomedical research.

The Washington Association for Biomedical Research

Why Are We Here?

In the 1980s, an organized approach to educating the public about the value of laboratory animals in research became essential. The Washington Association for Biomedical Research (WABR) and its sister organizations throughout the country were created in a climate of increasingly powerful activity aimed at bringing a halt to all biomedical research involving animal models.

Today, this nationwide public education and research advocacy network includes more than 25 partners. Each is committed to ensuring the public has access to accurate information about biomedical research and its benefits. Through the dynamic programs we create, each organization connects the real world of research to students, teachers, and the general public.

Whose Voices Do We Represent?

Our members come from academia, industry, health care and voluntary health organizations. All are united by the hope that their work in medical research can make a difference to the men, women, and children who await the development of new treatments and cures in their lifetimes. We represent many voices…

…those of patients and their families

…those of doctors, nurses, veterinarians, and animal research technicians

…those of research scientists and the staff who support them in their work.

What Educational Programs Do We Offer?

Student winners of the WABR *Amazing Animal Research* contest have the opportunity to be "Scientists for a Day" and visit a research laboratory as part of their award.

WABR and its state counterparts are well-recognized for their innovative and engaging educational programs. The network's collective resources — web sites, videos, CD-ROMs, posters, booklets, and other cutting-edge curricula — reach students at every grade level.

WABR's popular educational programs include:

Speakers' Bureau — Volunteer researchers, physicians, veterinarians, animal care staff, and patients tell their stories to classrooms and community groups throughout Washington state.

Ethics in the Science Classroom — Secondary school teachers participating in this five-day professional development experience discuss and practice strategies for integrating ethical discussions into their classrooms.

Amazing Animal Research — Middle school students learn to challenge assumptions about the use of animals in biomedical research as they create an essay or poster for this competition.

Each partner in our network celebrates the people, the process and the promise of biomedical research through their public programs. To learn more about the state or regional organization in your area, visit the WABR website: www.wabr.org.

What Services Do We Provide?

WABR's diverse programs are tailored to serve the needs of our members. We provide opportunities — meetings, workshops and briefings — for colleagues to share knowledge, resources and expertise. Our member services include training and support for animal care providers and a communications network for security personnel. Every WABR member receives *News to Use*, our quarterly newsletter.

How Are We Funded?

WABR's activities are supported by institutional member dues; state, federal and foundation grants; and generous contributions from individuals who support our mission and our work.

"Every organization calls itself into being as a belief that something more can be accomplished by joining with others."

MARGARET J. WHEATLEY AND MYRON KELLNER-ROGERS, *A SIMPLER WAY*

Whether you are a teacher, student, scientist or concerned citizen, **www.wabr.org** is a great place to find the facts you need and links to other organizations committed to educating the public about animal research.

Additional sources of information:

American Association for Laboratory Animal Science (AALAS)
www.aalas.org

AALAS Foundation
www.kids4research.org

Americans for Medical Progress Educational Foundation
www.amprogress.org

American Physiological Society
www.the-aps.org/pub_affairs/animals/index.html

American Veterinary Medical Association
www.avma.org

Foundation for Biomedical Research
www.fbresearch.org

incurably ill for Animal Research (iiFAR)
www.iifar.org

Join Hands Educational Foundation
www.joinhand.org

National Institutes of Health
www.nih.gov/science/models/

RDS (formerly Research Defense Society)
www.rds-online.org.uk

Seriously Ill for Medical Research
www.simr.org.uk

THIS WORK IS ABOUT HOPE.

THIS WORK IS ABOUT THE BELIEF THAT WE CAN MAKE A DIFFERENCE TO THE MEN, WOMEN, AND CHILDREN WHO HAVE DISEASES FOR WHICH THERE ARE STILL NO CURES.

THIS WORK IS ABOUT LETTING PEOPLE KNOW THAT BIOMEDICAL RESEARCH BENEFITS BOTH PEOPLE AND ANIMALS…

EVERY FAMILY HAS BEEN TOUCHED BY BREAKTHROUGHS MADE POSSIBLE BY ANIMAL RESEARCH.

Acknowledgements

WABR would like to thank the following sponsors of this booklet:

- AALAS Foundation
- The Esther A. and Joseph Klingenstein Fund, Inc.
- WABR Member Organizations

Washington Association for Biomedical Research
2033 Sixth Avenue, Suite 1100
Seattle, WA 98121
PH 206.956.3645
FX 206.441.5863
www.wabr.org

WASHINGTON
ASSOCIATION
for
BIOMEDICAL
RESEARCH