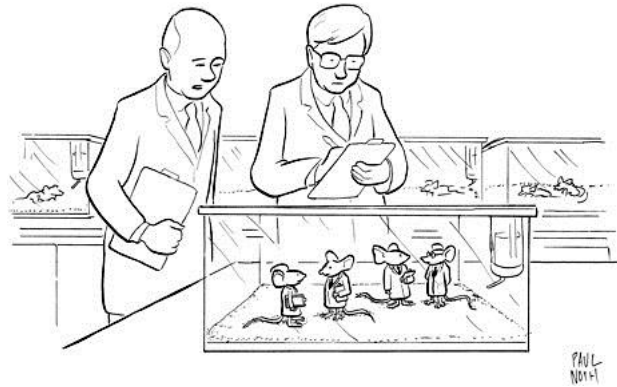


# BIOETHICAL PRINCIPLES CONCERNING NON-HUMAN ANIMALS' USE USE FOR RESEARCH



## Two Major Points of View

- 1) **Animal Rights** - the goal is ending all animal use
  - no food, clothing, entertainment, medical research or hunting
- 2) **Animal Welfare** – demands that animals must be treated and used humanely.
  - Animals can be used for any purpose, but the responsibility of care and humane treatment lies with the human



# ANIMAL WELFARE

- Animal welfare is the theory which maintains that it is morally acceptable to use nonhuman animals for human purposes as long as they are treated humanely and do not impose unnecessary suffering on them.

- *The goal of animal welfare is the regulation of animal use.*

- **Organizations**

- **The Animal Welfare Institute (AWI)**
    - work to protect endangered species, improve lives of animals used in experiments and advocate humane farm practices
  - **Animal Agriculture Alliance**
  - **The Animal and Plant Health Inspection Service**
  - **The American Veterinary Medical Association (AVMA)**
  - **The California Veterinary Medical Association (CVMA)**



## ANIMAL RIGHTS

- The animal rights theory maintains that we have no moral justification for using nonhuman animals for human purposes however humanely we treat them.

- *The goal of animal rights activists is to abolish the use of animals.*

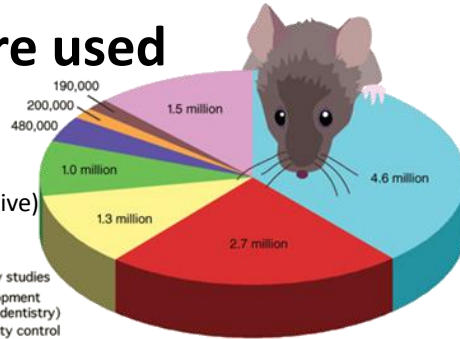
- **Organizations:**

- **People for the Ethical Treatment of Animals (PETA)**
    - animal rights supporter
    - work to stop animal abuse
    - compare animals to human children
  - **The Animal Place**
  - **The Humane Society of the United States (HSUS)**



# How Animals are used

- Animals for meat
- Animals for milk
- Animals for fiber
- Animals for pharmaceutical production (live)
- Animals for pharmaceutical production (organs)
- Animals for research
- Animals for companionship
- Animals for exhibition



- Fundamental biology studies
- Research and development (human, veterinary, dentistry)
- Production and quality control (human medicine, dentistry)
- Toxicological and other safety evaluation
- Production and quality control (veterinary medicine)
- Education and training
- Diagnosis of disease
- Other

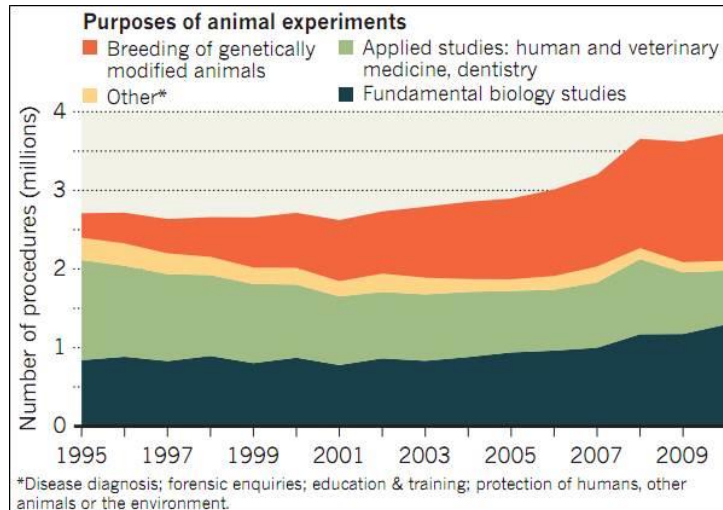


A natural protein produced in the milk of transgenic cows like this one kills the bacteria that cause animal mastitis. Source: USDA.



a pig, transgenic generations of which might be used to produce blood substitutes for use in humans.

# Animals used for Research

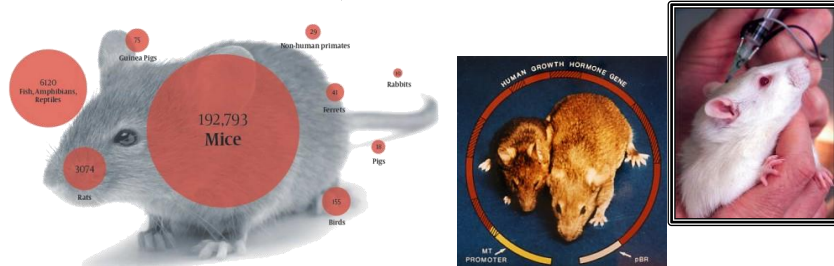


- Medical Research
- Psychological and Social Research
- Consumer Research
- Environmental Research
- Agriculture Research

## Laboratory Animals for Research

- 23 million mice are used in research each year (95%)
  - Mice are particularly valuable for research because 99% of their 30,000 genes have direct counterparts in the human genome.
  - By 2003 there were already 3,000 GM strains of mice. It has been predicted there will be 300,000 by 2020.
    - Hundreds of mice are needed to produce each, though most of the mice are killed because they do not develop the needed mutation.
- Rats make up the second largest group
- Only 1 to 1.5% of research animals are dogs and cats.
- Only 0.5% are non-human primates.

Number of animals used for research in Oxford, 2012



- From the 1970s until the 2000s → steady

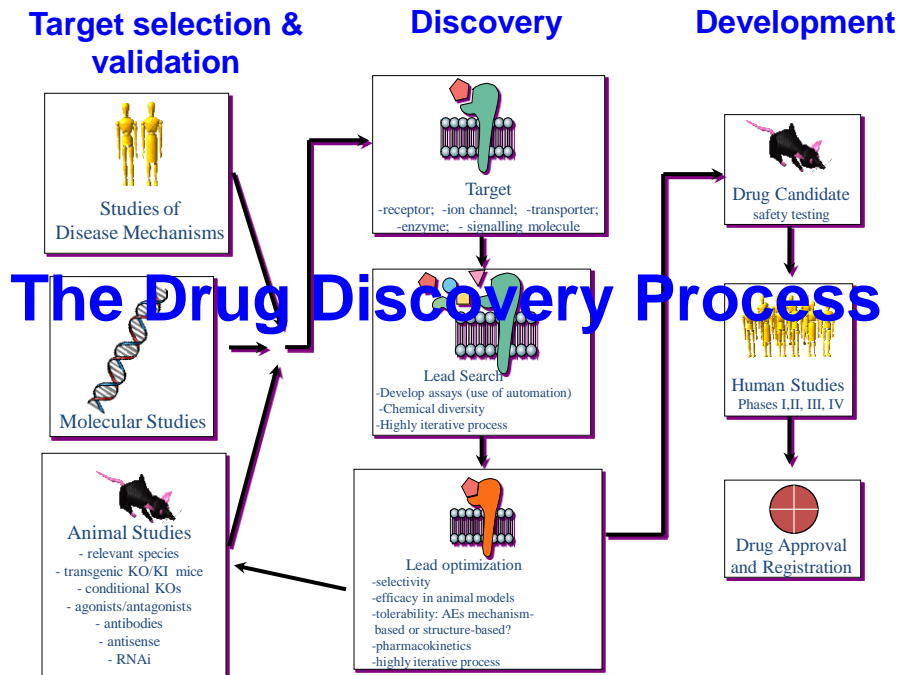
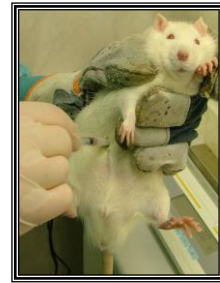


US Government statistics for use of animals in research in 2006  
 (<http://speakingofresearch.com/facts/statistics/>)

SOURCE: Home Office

## Animals in Research

- Animals are often used in **medical research** to:
  - Investigate the progression of diseases
  - Test new drugs
  - Test new surgeries
- Animals are also used in **cosmetic research** to test for allergic reactions and other potential side-effects caused by cosmetic products.



## The Importance of Animals in Biomedical Research



### Why are animals used in research?

- organs and body systems similar to humans and other animals
- susceptible to the same diseases that affect humans;
- short life span allows animals to be studied throughout their entire life;
- environment easily controllable to keep experimental variables to a minimum;

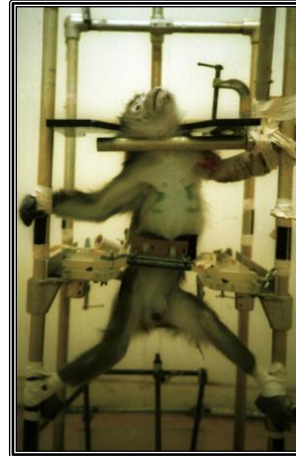
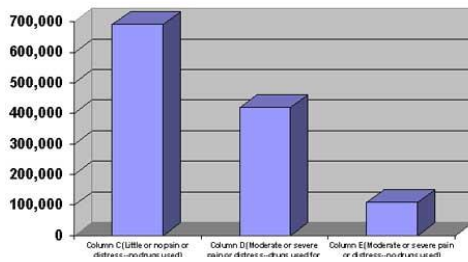
### Benefits of Animal Research

- *Since the early 1900's: life expectancies have increased from 47 to about 77.*
- *Economic Impact – the medical industry alone recognized about a 57 trillion dollar savings in the 70's and 80's*
- *Drug treatments, vaccines and surgical procedures have been developed to improve the quality of life for animals*

## Why Be Concerned?

- Much like the reason why we should study biomedical ethics generally, we should study the ethics of animal research because of the appalling history of medical abuses involving animal test subjects.
- Only by studying how we *ought* to conduct research can we avoid unprofessional, unscientific, and needlessly repetitive studies that bring about unnecessary harm to laboratory animals.

Pain and Distress Reported in Animals Covered By the Animal Welfare Act--1999



## Guidelines and Regulations used to ensure



## What do the regulations ensure?

- That animals are used in research only when it's absolutely necessary.
- That when animals are used in research they are humanely treated.



## When can animals be used?

1. When there are no other alternatives.
2. When confirmation has been made that research activities are not unnecessarily duplicating previously conducted experiments.
3. Experiments involving animals are relevant to human or animal health, will advance scientific knowledge, or will be for the good of society.





## How? The law specifically states:

1. When animals are used for research a scientist must avoid or minimize discomfort, distress, and painful situations.
2. If a procedure involves more than momentary or slight pain or distress, it must be performed using appropriate pain relieving drugs (e.g. sedatives, analgesia or anesthesia).
3. If animals are to be transported, appropriate arrangements must be made to ensure the process is comfortable and occurs with as little stress as possible.
4. The living conditions of animals must be clean and appropriate for the species.



- The method of euthanasia, either physical or chemical, should be:
  - 1) appropriate for the species and the age of the animals;
  - 2) painless, avoid excitement and achieve rapid unconsciousness and death;
  - 3) reliable, reproducible and irreversible.
- Prior to euthanasia, it is important to recognize symptoms of fear, distress and anxiety
- The person performing euthanasia is the most relevant factor in order to diminish pain, fear and distress.  
All persons performing euthanasia should be well trained, demonstrate professionalism and be sensitive to the value of animal life.



- The three Rs are a set of principles that scientists are encouraged to follow in order to reduce the impact of research on animals:
  - Reduction,
  - Refinement,
  - Replacement.

