We are committed to the responsible use of animals and the welfare of the animals we use is a top priority. We work within both the company and the wider scientific community to share knowledge in the replacement, reduction and refinement of animal studies.

2014 highlights

Became a signatory

of The Concordat on Openness in Animal Research, an agreement across the life science sector to improve communication to the public about animal research.

Engage

Supported the 2014 Cambridge Science Fair to talk to the public about our use of animals in science.

Launched

a new Global 3Rs awards programme to include research collaborators who work with us to develop our life-saving medicines.

Our approach

Rapid advances in technology in recent years have led to the increasing availability and use of alternatives to animal testing. But these alternatives cannot yet provide all the essential information needed about how a potential new medicine works on disease and the living body, and what the possible side effects might be.

Animal studies continue to play a vital role in the search for new and improved medicines. The vast majority of all medicines we have available today have involved some animal research, and animal studies are required by regulators before they approve a new medicine to be tested in humans during clinical trials.

While we will always focus on replacing animal studies with better, more accurate models, we know that in the interim it is essential to provide the best possible care and the highest welfare standards available. Our Bioethics Policy defines the principles, behaviours and ethical standards governing our research and development worldwide.
Implementing the highest standards

Our Bioethics Policy states that all research involving animals must be carefully considered and justified, that the principles of the 3Rs (replacement, reduction and refinement of animal studies) be applied, and that the welfare of the animals we use is a top priority. Our requirements apply globally across all our internal animal research, to third parties who conduct research on our behalf, and to the breeders and suppliers of animals for use in such studies.

Our consistent global standard for animal welfare is compliance with relevant external laws and regulations, and with the principles of the Guide for the Care and Use of Laboratory Animals (“the Guide”) – the internationally respected good-practice guideline for this area. Wherever possible we prefer to use facilities accredited by the Association for the Assessment and Accreditation of Laboratory Animal Care (AAALAC International). AAALAC accreditation serves as an independent quality mark, validating that the standards of the Guide are being met.

AstraZeneca’s Chief Veterinary Officer chairs a group called the Council for Science and Animal Welfare (C-SAW), which is the expert decision-making group accountable for animal welfare and compliance across the AstraZeneca Group companies. The C-SAW is responsible for developing and implementing policies and standards, and provides the highest level of governance for animal welfare across the organisation. The C-SAW also includes representatives with expertise in the 3Rs and regulatory compliance. Having a single council responsible for all aspects of animal care and welfare ensures that we have one consistent global standard for all work involving animals, and one consistent approach to animal welfare and compliance. We have a dedicated Ethical Review Committee, which monitors all external studies to ensure our standards are maintained.

Engaging with stakeholders

We welcome and proactively engage in open and constructive dialogue with stakeholders who have a legitimate interest in our use of animals in research. We also seek to help external stakeholders understand our use of animals in research.

While we acknowledge the right of every individual to express their views on the use of animals in research, we condemn the use of violence and other illegal acts. We firmly reject any harassment, intimidation or harming of our employees and their families, our suppliers and our other stakeholders as totally unacceptable.

In addition to providing funding for organisations and working groups that educate the public about the use of animals in research such as Pennsylvania Society for Biomedical Research (PSBR), Americans for Medical Progress (AMP) and The Foundation for Biomedical Research (FBR), employees from across the company have also participated in several classroom events where speakers come in to talk to students about lab animal sciences. AstraZeneca employees also attended the 2014 Cambridge Science Fair to meet the public and tell them about our use of animals in science.

The use of animals in research is a complex topic. For more information visit:

**Understanding Animal Research:**
www.understandinganimalresearch.org.uk

**Foundation for Biomedical Research:**
http://fbresearch.org/

**The National Centre for the Reduction, Refinement and Replacement of Animals in Research:**
www.nc3rs.org.uk
Openness in animal research

AstraZeneca is a signatory of the Concordat on Openness in Animal Research. Launched in July 2014, it commits us and other signatories to being clear about when, how and why we use animals in research; enhancing our communications with the media and the public about our research using animals; being proactive in providing opportunities for the public to find out about our research using animals; and reporting annually on our progress.

As a signatory of the Concordat, we will be required to report annually and provide examples for each of the four commitments. The first annual request for information was in May 2015. Updates on our compliance with the commitments of the Concordat will be available on the website www.understandinganimalresearch.org.uk in late 2015.

Animal welfare

The welfare of all the animals we use in research is a top priority. Not only is this the right thing to do ethically, but also good science depends on high welfare standards. For instance, stress can cause a variety of different responses in different animals, increasing variation between animals and reducing confidence in the data produced. Ensuring animals are fit and well, and making sure all their behavioural needs are met reduces stress, reduces variation and produces better quality data from fewer animals.

All employees involved in our animal research programme have to undergo mandatory training and ongoing assessment of competency. Laws and regulations vary from country to country; for instance in the UK everyone carrying out procedures on animals must be licensed by the Government before starting work, whereas in Sweden and the United States, authority is granted by the establishment itself (under the authority of the Oversight Body or IACUC) upon completion of mandatory training.

While legal requirements vary across countries, all AstraZeneca employees involved in research with animals have to work in accordance with the Guide for the Care and Use of Laboratory Animals (‘the Guide’) – the internationally respected good-practice guideline for this area. All employees involved in research with animals are required to keep their training up to date and must be continually developing their skills. We monitor this through our integrated Continuing Professional Development programme. We also make use of external certifications and ratifications, such as Institute of Animal Technology (IAT) membership in the UK or American Association for Laboratory Animal Science (AALAS) certification in the US.

When working with third parties, we perform a range of due diligence activities to check their training and competency assessment processes, but these checks are also necessary for achieving AAALAC accreditation.
Case study
Applying the 3Rs

The drive to reduce, refine or replace animals has been a major focus of the research community for over half a century. Each year, new developments are made that bring us closer and closer to our goal of finding better, more accurate predictors of safety and efficacy. Today, around 98 percent of the animals we use in research are rodents, which is a direct result of the research community’s effort to reduce, refine and replace.

AstraZeneca has always looked for the next technique or design that may decrease the number of animals used. For example, staff from AstraZeneca initiated and led a global pharmaceutical company project, facilitated by the National Centre for the Reduction, Refinement and Replacement of Animals in Research (NC3Rs), that successfully challenged the need for single dose acute toxicity studies in the development of medicines, resulting in a worldwide regulatory change, which has seen a 78 percent decrease in the number of clinical trial applications that include acute toxicity data between 2007 and 2014. This data-sharing project was the beginning of many such initiatives the NC3Rs now runs with the pharmaceutical industry and regulators.

Another example of how we have applied the 3Rs is by changing the way we take blood from rodents. In the past, drug exposure data (showing how a potential new medicine is broken down by the body) had to be obtained separately from toxicological (safety) data. This meant we had to use extra (satellite) groups of animals because combining the two would require too much blood to be taken from a small animal like a rodent.

Our new capillary micro sampling (CMS) method, developed in 2012, collects and analyses very small, exact volumes of liquid blood or plasma when using rodents in toxicological studies. Because only a droplet of blood is taken, CMS makes blood collection quicker and less stressful for the animals and means we now rarely need to use the satellite group, reducing the overall number of animals used.
The 2014 3Rs Awards

Building on the success of previous corporate 3Rs awards programmes, the C-SAW launched a new Global 3Rs awards programme in 2014. Expanding the scope to include research collaborators who work with us to develop our life-saving medicines helps us find and implement the best 3Rs ideas, which can then be used company wide. Prizes to our 3Rs awards winners include funds to help share these ideas to the rest of the research community, which benefits animal welfare globally. In 2014, 33 entries were received for the Global 3Rs awards. Entries were judged by an internal and external panel of experts in the field, including a representative from the UK’s NC3Rs.

“It is of vital importance for the company and for all of us to do our best to uphold the 3Rs and think continuously about how to improve experiments with animals. This is important for the science as well as for the animals involved.”

Professor Dame Nancy Rothwell, President & Vice-Chancellor, The University of Manchester

Our progress

We used 194,162 animals in-house and a further 15,634 animals at external contract research organisations in 2014.

The total number of animals we use will continue to vary because use depends on a number of factors, including the amount of pre-clinical research we are doing, the complexity of the diseases under investigation and regulatory requirements. We believe that without our active commitment to the 3Rs, our animal use would be much greater.

Our priorities are to ensure we are using the right number of animals needed to deliver a statistically reliable result, and to avoid repeating studies unnecessarily. We are also committed to ensuring the welfare of the animals we use.

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-house</td>
<td>304,751</td>
<td>260,930</td>
<td>194,162</td>
</tr>
<tr>
<td>External contract research</td>
<td>14,284</td>
<td>19,676</td>
<td>15,634</td>
</tr>
<tr>
<td>Total</td>
<td>319,035</td>
<td>280,606</td>
<td>209,796</td>
</tr>
</tbody>
</table>