



**HUMANE SOCIETY  
INTERNATIONAL**

# The impact of closure of specialised mouse research facilities

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## Sanger Institute animal research facility to close

# Genomics institute to close world-leading animal facility

*Sanger's decision prompts questions among some scientists, who fear the UK centre could fall behind.*

Holly Else



16 May, 2019 - 17:34 By Tony Quesed

## Sanger Institute closing animal research facility

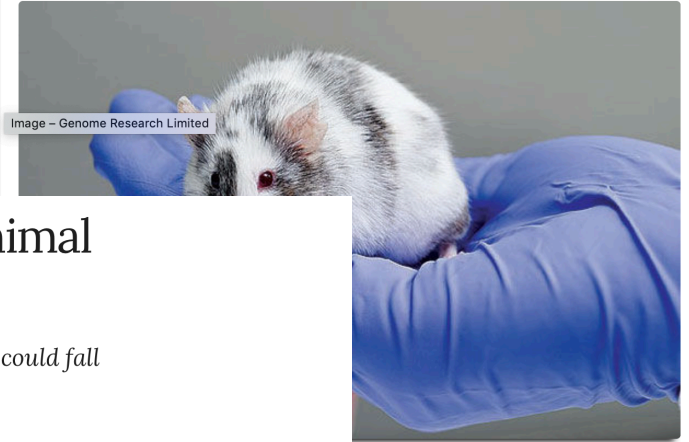


Image – Genome Research Limited

Cambridge is throttling back on the ice as it ramps up its use of alternative tegy.

rapping of the Human Genome, intends 3 fewer mice are now needed in its wide

or future experimentation it will use

e Wellcome Sanger Institute, said the he next few years.

[PDF version](#)

### RELATED ARTICLES

Sanger whistle-blowers dispute findings that cleared management of bullying



Two prominent mouse centres in the UK closing/under review within six months.

Should we be celebrating?

## UK's leading mouse genetics centre faces closure

**Plan to halt academic work at Harwell Institute threatens research including on diabetes**



▲ Harwell's Mammalian Genetics Unit studies gene function and how diseases and disorders arise when genes go awry. Photograph: Getty Images

Britain's leading centre for mouse genetics is facing closure in a move that critics say will undermine crucial research on serious diseases and threaten the standing of UK science.

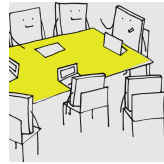
The Medical Research Council has told staff at its Harwell Institute in Oxfordshire that an internal strategy board recommended the closure of all academic work at the site, threatening research on diabetes, neurodegenerative disease, child deafness and other conditions.

# HSI's BioMed21 Collaboration

Promoting a shift to a human-focused paradigm in health research



Support independent expert reviews exposing the failing animal models of human disease



Organise workshops stimulating dialogue among key stakeholders at regional and global levels



Collaborations with academics, corporations and governments to advance our shared vision

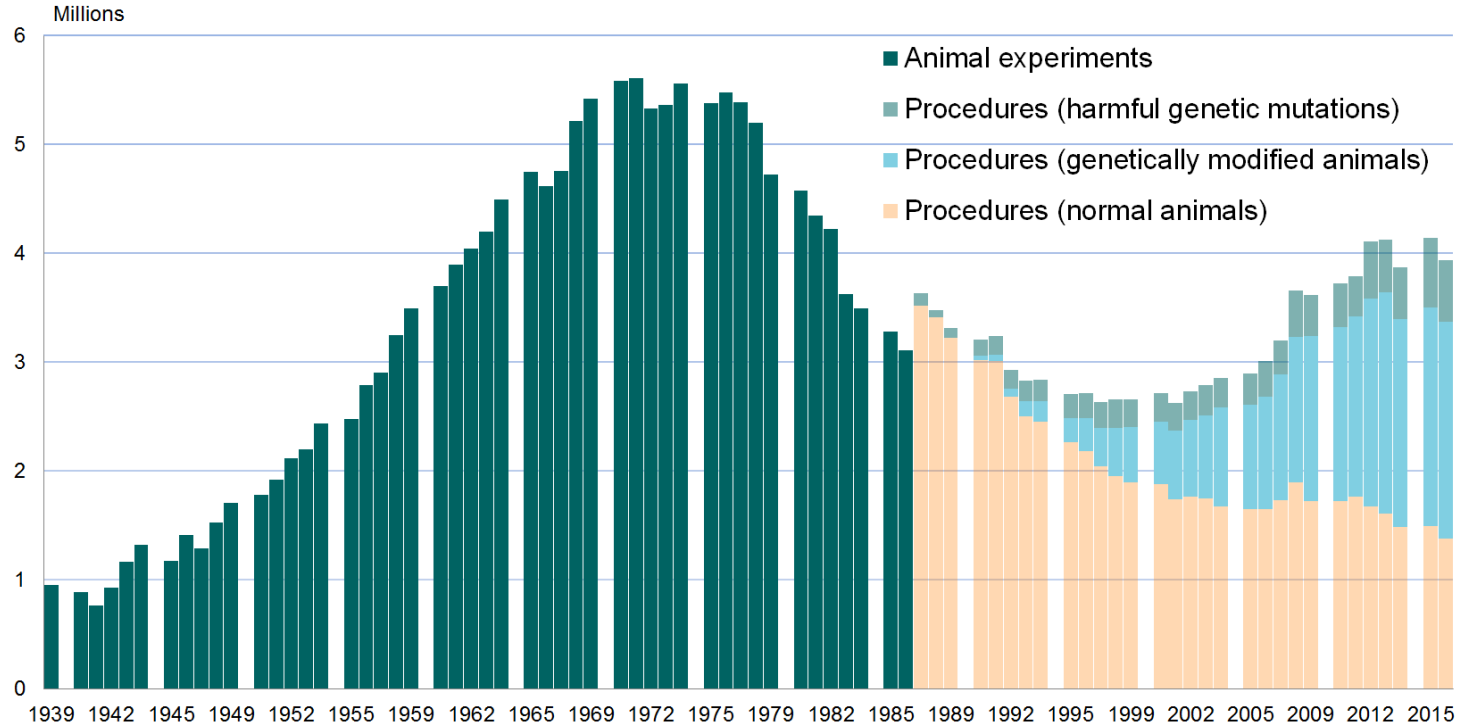


Redirecting funding away from animals and toward human-based predictive approaches

[www.biomed21.org](http://www.biomed21.org)  
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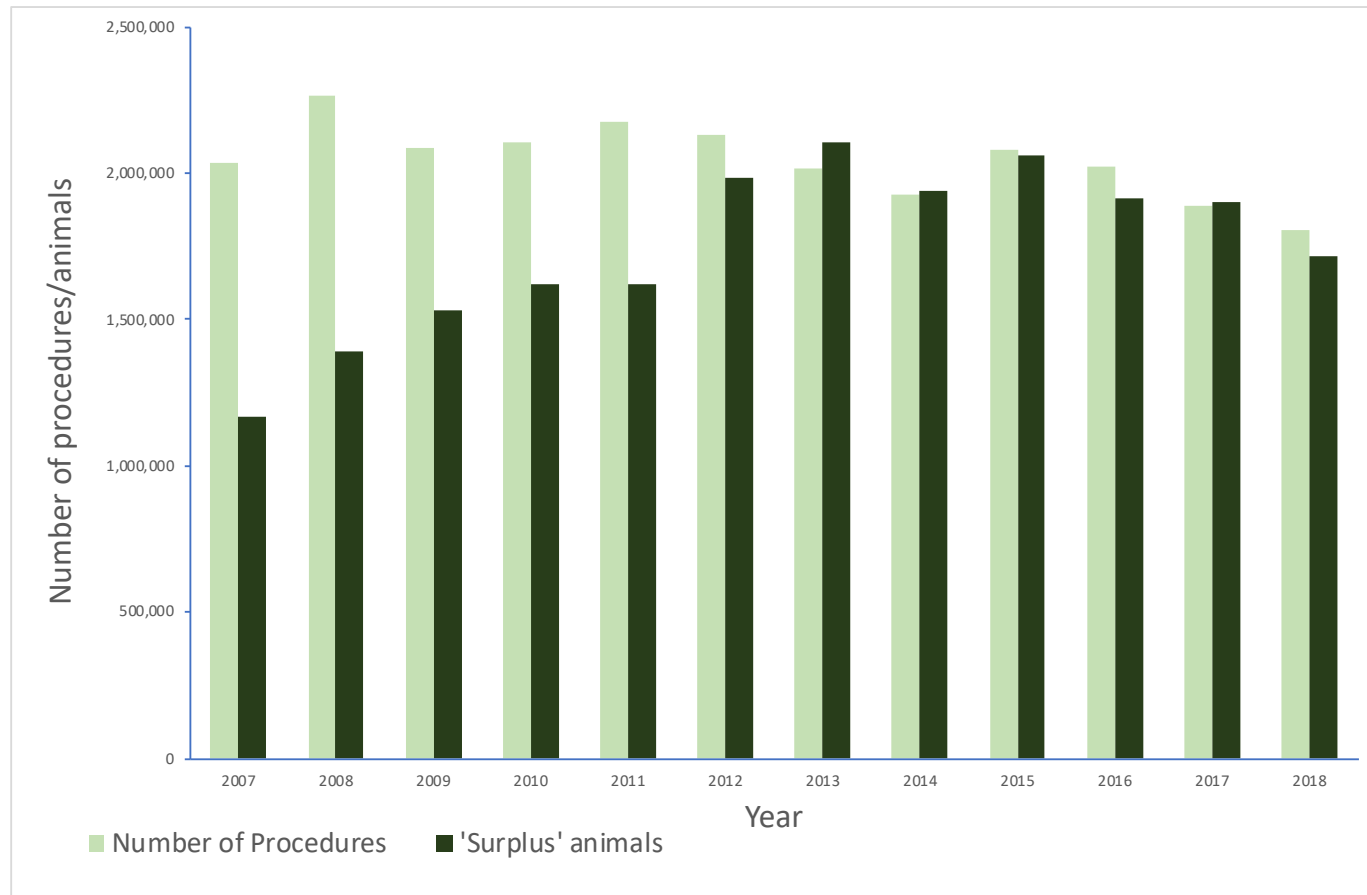


# Overbreeding is a GM issue



Source: Understanding Animal Research

- Overbreeding creates 'surplus' animals who are bred to be culled
- No scientific 'benefit'
- Waste of animal lives, time and money
- This 'surplus' equates to ~50% of animals recorded under UK statistics and has done for the past 7 years
- This is a total of **27,487,033 animals**



UK Home Office data from ASPA annual reports

# Possible cause(s) of overbreeding

- Inefficient practices to generate mutant animals\*
- Wild type animals bred and not required\*
- Wrong mutation/errors in phenotyping\*
- Tick-over breeding (e.g. possible publication need)
- 'Just in case' breeding (e.g. possible need of mutants for future projects)

\*could be addressed with specialised centres

# Solving the overbreeding problem

- Directive 2010/63 has the ultimate aim of **Replacement**, but requires dedicated efforts for **Reduction** and **Refinement** till we reach that point
- This indicates a role for established centres of excellence for animal breeding and welfare (**Refine** and **Reduce**)
- Genetic modification and breeding are a particular concern for mice, who are small, cheap, most frequently used and most frequently genetically modified
- Potentially huge impacts on animal numbers (**Reduction**) and welfare (**Refinement**)

# Solving the overbreeding problem

What specialised centres offer that most research establishments lack:

- Centralised expertise
- Reduction of over-breeding (centralised cryopreservation facility; standardised protocols with improved efficiency)
- Evolving/enhancing welfare standards (e.g. Moshers CRACKIT challenge)
- A resource for all mouse users (mutation database, specific care requirements)
- A resource for prospective mouse users (provision of mutants, training sessions)

# In-house breeding is the norm (Refine)

Year	GM <b>animals</b> /mice acquired in house (% total GM)	HM <b>animals</b> /mice acquired in house (% total HM)
2006	<b>91.8</b> 96.3	<b>77.7</b> 87.4
2007	<b>91.8</b> 97.3	<b>78.1</b> 85.8
2008	<b>88.3</b> 97.2	<b>71.2</b> 88.0
2009	<b>90.3</b> 96.7	<b>80.4</b> 88.5
2010	<b>89.8</b> 96.4	<b>79.5</b> 90.6
2011	<b>89.1</b> 96.1	<b>77.5</b> 87.1
2012	<b>88.9</b> 97.1	<b>80.6</b> 89.9
2013	<b>96.9</b> 96.8	<b>91.0</b> 89.0

# But do we want to improve this practice? (Refine/Reduce)

UK GM Breeding Framework... yet every establishment is likely to have

- Different practices
- Different resources
- Different experiences

More impact on animals if specialised breeding centres are used rather than requiring everyone to follow the same rules for breeding

→ Provide less support for in-house breeding at each establishment via project/licence approval process



Home Office

## Efficient Breeding of Genetically Altered Animals Assessment Framework

January 2016

### Introduction

This assessment framework is intended to assist establishments to consider the efficiency with which they breed genetically altered (GA) animals. ASPA requires licencees to apply the 3Rs at all times, including in the context of the production and use of GA animals. This framework is intended to help with the assessment of establishments' success in this regard.

The framework was created in consultation with breeding experts and establishments, and provides background information, lines of enquiry and examples of acceptable findings, as well as the underlying performance standards and potential performance outcomes that establishments may wish to measure in order to track progress. This assessment framework is designed around the breeding of GA mice, although the principles will apply to many species.

There is no such thing as a single "breeding management blueprint" that will work in every establishment. Establishment factors, scientific factors, species and strain factors and the resources available will all influence what an optimum breeding programme looks like in each establishment. However, even if the way they are achieved is different, core underlying performance standards are common to every establishment.

*This assessment framework is not in itself mandatory and does not define mandatory or additional requirements.* Some elements within it are, however, required by licence standard conditions or the Code of Practice. It is anticipated that AWERBs may find this assessment framework useful to assist them with their statutory duty to advise on the application of the 3Rs within their establishments. Project Licence holders and Animal Unit Managers may also find it useful for self-assessment. Inspectors will use this assessment framework when considering how establishments apply the 3Rs to their GA breeding programmes.

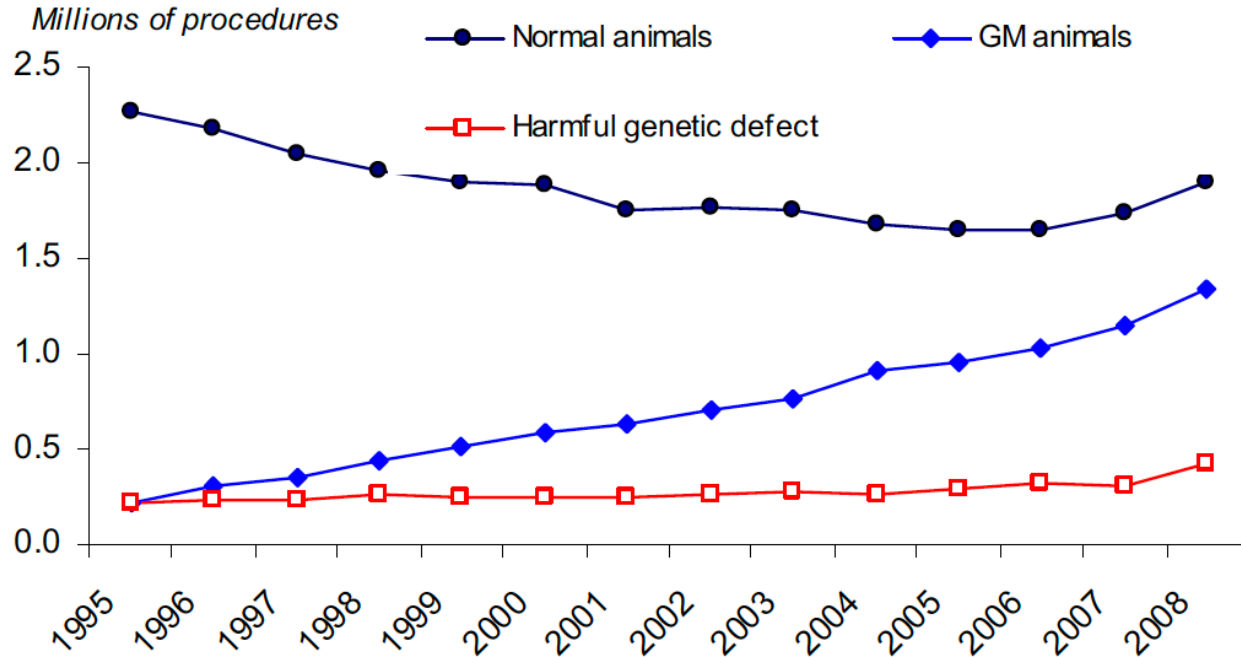
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# Not just overbreeding: also welfare implications (Refine)



**Figure 6: Procedures by genetic status of animal, 1995-2008**



# Short-term solution (Reduce/Refine)

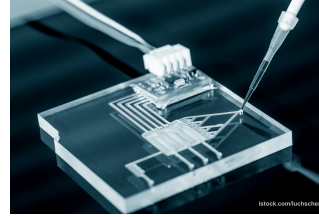
Whilst animals are bred and used for scientific purposes, we should maintain hubs of expertise and require their use to address the overbreeding problem

- Incentivise use of cryopreservation services to reduce colony tick-over and culling
- Advise reduce most harmful category
- Continue to refine breeding practices
- Better adherence to 3Rs

# Shift the research paradigm (Replace)



Recognise failing preclinical models and stop authorizing  
Discontinue funding for animal models



Redirect funding to human-predictive microphysiological and computational models



(Re)train scientists in non-animal research design  
Modify/redesign university curricula



Resolve to phasing out animal use in science, with defined timetable and metrics

[www.biomed21.org](http://www.biomed21.org)

Transitioning to a human-focused paradigm in health research

Create a more  
*humane society*



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