



# Bulletin



## The scientific case for non-animal research

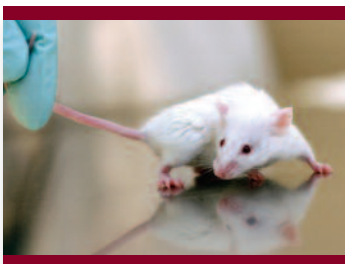
### welcome

**The field of non-animal biomedical research is expanding at an unprecedented rate.**

Developments in growing human tissues in the lab, genetic technologies, computer simulations, robotics and safe first-in-human technologies (such as microdosing) have led to cheap, rapid and reliable methods for conducting both safety testing of chemicals and disease research.

Animal tests look slow and old-fashioned by comparison. And yet, powerful voices with a stake in the 'animal model' promote the message to Europe's legislators that the choice is between minimising animal suffering and advancing human health.

The real choice is between good and bad science – and animal tests are bad science. **This newsletter, produced especially for parliamentarians across the EU, will offer evidence of the value of non-animal methods, by way of a handful of succinct, fully referenced examples. We welcome your feedback (andrew@animalaid.co.uk).**



### ■ Why use a rat when a human lung will do?

*'Now we can do our experiments in petri dishes with functional human tissue. Now you have human data, so no need for the rat. I say, why use a rat when a human lung will do?'*

*'I don't see any reason why we can't use human tissue. It's the best way to go. You get human end point data, you don't have to worry about saying, well, this happened in the rat, this might happen in man. So you can do it. It's just a matter of having an application, a tissue supply and of course funding from agencies such as the NC3Rs.'*

**Dr Kelly BéruBé, School of Biosciences, Cardiff University, speaking on BBC Radio 4's flagship news programme Today (June 4 2009).**

Dr BéruBé has developed a test-tube method of growing human lung tissue donated by heart-lung transplant patients. She hopes that the technique will replace animal testing for a wide variety of aerosolised consumer products (e.g. hairspray, perfume, deodorant and air fresheners) and for testing drugs for lung diseases (e.g. asthma, COPD and fibrosis).

### ■ 'We just need to move on to something else'

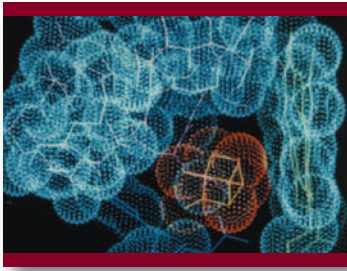
Key US government agencies – the National Institutes of Health (NIH) and the Environmental Protection Agency (EPA) – announced in 2008 that their laboratories will start moving to non-animal methods such as the use of cells and computer models to test chemicals, drugs and toxins for safety. Officials claim that non-animal methods are faster, far less expensive and are likely to be more accurate.

*'There are simply too many chemicals, too many tests, and too many questions. Using animals to test chemicals thoroughly is time-consuming*



*and expensive... we just need to move on to something else.'*

**Peter Preuss, director of the EPA's National Center for Environmental Assessment.** Stakeholder's symposium at the US National Academies, in Washington, D.C., May 2009, reported in *Chemical & Engineering News*, June 22 2009.



## ■ Cell research

Non-animal research at cellular level has become a priority amongst non-animal researchers, particularly in the US now that President Obama has reversed Bush's decision to forbid the use of stem cells. Scientists at Harvard have recently discovered a master human heart cell that provides the basic building blocks for three types of heart tissue.

*'Since these [cells] are entirely human, you can use this system now to study the role of specific genes in human heart disease, and as ways to screen drugs for cardiotoxicity and for therapeutic effect.'*

**Dr. Kenneth R. Chien, Director of the Cardiovascular Research Center at Massachusetts General Hospital.**

*Fierce Biotech Research Newsletter, July 7 2009.*

*'It is fair to say in the future, stem cell technology could develop highly predictive cell-based assays for cardiotoxicity that could one day replace the current models, such as using cells from cadavers or animals.'*

**John D. McNeish, Executive Director of Pfizer Regenerative Medicine.**

*Fierce Biotech Research Newsletter, July 7 2009*

## ■ Artificial liver research in Europe

Work on the development of artificial organs has also become a priority amongst enlightened scientists in Europe.

*'Our artificial organ systems are aimed at offering an alternative to animal experiments, particularly as humans and animals have*

*different metabolisms ... 30 per cent of all drug side effects only come to light in human clinical trials.'*

**Professor Heike Mertsching, Fraunhofer Institute for Interfacial Engineering and Biotechnology IGB, Stuttgart.**

*Artificial Liver For Drug Tests, Science Daily, June 25 2009.*

## ■ Toxcast – a computer programme for the future

ToxCast is a new computerised programme developed in the US to predict whether chemicals are toxic and to help prioritise those that should be targeted for further testing. The National Center for Computational Toxicology (NCCT) is also developing the ToxCast model to produce a virtual liver, as well as a virtual embryo.

*'That starts to get us to predicting toxicity in humans rather than in rats.'*

**Robert J. Kavlock, Director of the NCCT.** Stakeholders' symposium at the US National Academies, in Washington,

D.C., May 2009, reported in *Chemical & Engineering News*, June 22 2009.



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## ■ 'A change of approach needed'

An editorial in the *British Medical Journal* stresses the need for a completely fresh approach in medical research. Current efforts worldwide – it claims – are 'inefficient, wasteful, and ignore consumers.'

*'Researchers ask the wrong questions using the wrong*

*methods, results are poorly reported and selectively published, and research funding is misdirected, ignoring the priorities of patients who want treatment options beyond drugs.'* *British Medical Journal*, 16 June 2009.