



# Bulletin



The scientific case for non-animal research

## welcome

**The message is clear from this sixth Animal Aid Bulletin: the technologies now exist to replace large numbers of animal experiments with humane alternatives.**

In particular, cell cultures and 'organs on chips' could now take centre stage in toxicology and drug development. It is also vital to recognise that, given the high cost and inefficiencies of animal experiments, developments such as those we highlight are the inevitable future of medical research. All sides, in what is a strongly contested debate, support the phasing out of animal experimentation. The EU and Member States must ensure that humane research remains fully supported, both financially and legislatively.

As always, we welcome your feedback.

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## Synthetic hydrogels offer alternative to animal tissue in drug tests

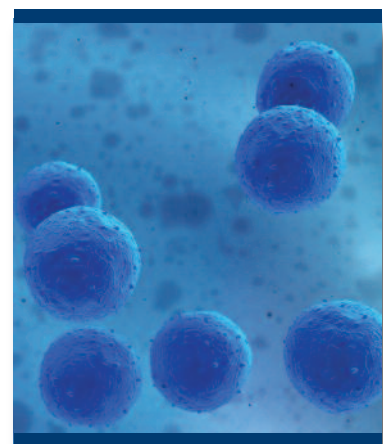
A team of scientists at Reading University, funded by the UK's Biotechnology and Biological Sciences Research Council, has developed a new way to test the adhesive qualities of drugs under laboratory development. The hydrogel that the team has produced mimics the properties of mucosal tissues, such as those found in the mouth and stomach, to assess how medicines will react in the body. Currently, mucosal tissues from animals are used, but according to Dr Vitaliy Khutoryansky from Reading School of Pharmacy, 'the use

of animal tissues in adhesion experiments doesn't always produce the best results because of their variable properties. The new synthetic hydrogels... could prove a real alternative to using animal material for testing the mucoadhesive properties of future medicines.'

*Published in Soft Matter by the Royal Society of Chemistry, July 2011. Also reported online at [http://www.manufacturingchemist.com/news/article\\_page/Research\\_could\\_offer\\_alternative\\_to\\_animals\\_in\\_drug\\_tests/62281](http://www.manufacturingchemist.com/news/article_page/Research_could_offer_alternative_to_animals_in_drug_tests/62281)*

## Artificial blood vessels could replace animal experiments

German scientists are building a 3D printer that can print out artificial blood vessels. In the future, the team expects the blood vessels to be able to supply artificial tissue with nutrients. The manager of the BioRap project, Dr Gunter Tovar, says there are enormous possibilities for the technique. One such option is building completely artificial organs based on a circulation system using the artificial blood vessels that the team has developed to supply them with nutrients. These organs could then be used in place of animal experiments.



*Reported on TG Daily, September 14, 2011 <http://www.tgdaily.com/general-sciences-features/58449-artificial-blood-vessels-made-through-3d-printing>*



## ■ Virtual liver could replace animal testing

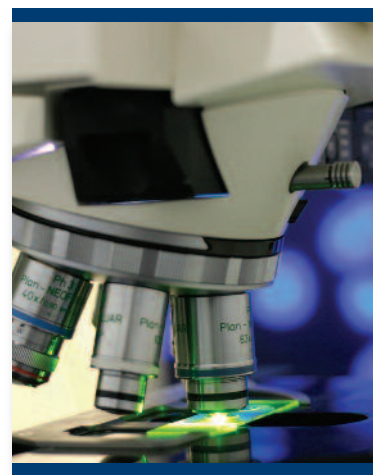
The US Environmental Protection Agency is building virtual human organs that, when completed, could identify the risks posed by common industrial pollutants without testing them on animals. The research team is particularly interested in creating a computerised liver, as the liver is often the first organ to be injured by toxic chemicals. Traditionally, chemical safety experiments have been conducted on animals, but Dr John Wambaugh – a scientist working on the project – acknowledges that there is no way to guarantee that something safe for animals will also be safe for humans. Extrapolating data from a set of nearly identical animals in a laboratory to human beings is very difficult. Using a computer model of a human liver would not only be more accurate, it would also dramatically speed up the testing process, as a single animal experiment can take two years to complete.

*Reported in The Sun News, July 2011-11-23*  
<http://www.thesunnews.com/2011/07/03/2256720/virtual-liver-in-the-works-could.html>

## ■ Non-animal test for Botox approved

Allergan Inc, the makers of Botox, announced earlier this year that the Food and Drug Administration has approved its new method to test Botox's potency. Previously, every batch was tested on live animals, but now the company can run a test on nerve cells in a lab dish instead. Tim Terrell, Allergan's senior vice president for drug safety evaluation, says the new test allows scientists to test many more doses of the drug, and obtain precise results. If it's approved in all the countries where Botox is sold, Allergan expects to eliminate 95% of its animal testing within three years.

*Reported in the Los Angeles Times, October 2011*  
<http://www.latimes.com/health/la-he-animal-testing-20110718,0,3431943.story?page=1>



## ■ Pioneering technology could reduce animal testing

Midas Mediscience, a research company based in Sittingbourne, Kent, has developed new technology based on the use of human stem cells and a computer programme called DrugPrint, which could reduce the use of animal testing in drug development. The stem cells

are grown to behave like heart cells, complete with a heartbeat. DrugPrint is able to analyse that heartbeat, and accurately and reliably detect small electrical changes when the cells are exposed to trial medicines. This provides a unique insight into human responses early in drug development, while also reducing the reliance on animal testing. Consequently, the method is drawing increasing interest from biotechnology and pharmaceutical companies.  
*Reported in the East Kent Gazette, October 2011*  
<http://www.thisiskent.co.uk/Scientists-hope-cut-animal-testing/story-13621063-detail/story.html>

