



## **Media Release**

### **From the Universities Federation for Animal Welfare (UFAW)**

**8<sup>th</sup> October, 2012  
For Immediate Release:**

#### **New research could significantly reduce the numbers of animals used in drug development**

Research funded by the Universities Federation for Animal Welfare (UFAW) 3Rs Liaison Group, now underway at Royal Holloway University of London, may lead to an innovative model to help the early-stage identification of emetic (nausea and/or vomiting) liability for new drugs under development without using animals as test models.

A major problem, when developing new drugs for human (or animal) use, is that potential drugs can cause nausea or vomiting (emesis) as a side effect. In fact, emesis is reported as a possible side effect in approximately one third of medicines. This is not just a problem for patients who may be reluctant to take such drugs, or if they do may have difficulty keeping them down, but also for animal welfare as animals are used to test for emesis when new drugs are developed.

Rodents, ferrets, dogs, house musk shrews and non-human primates are used in emesis research. In clinical (human) studies nausea and vomiting are perceived as unpleasant, and for patients undergoing chemotherapy for cancer<sup>1</sup> are among the side effects of most concern. If animals experience similar sensations, then testing drugs on them for emetic effects is likely to be very unpleasant for them as well. The discovery that a candidate drug causes emesis may contribute to its abandonment at a relatively late stage in the development process<sup>1</sup>. This results in unnecessary animal use and considerable expense, so it would benefit both animal welfare and the researchers if a way could be found to identify emetic effects earlier.

In an attempt to develop an alternative to the use of animals in this type of research, the Universities Federation for Animal Welfare has organised a coalition of pharmaceutical companies and other welfare organisations to fund researchers at Royal Holloway University of London, to investigate whether it is possible to use a non-sentient single-celled organism – the social amoeba *Dictyostelium*<sup>2</sup> – to screen potential drugs for a propensity to induce emesis at an early stage in the drug discovery process. The researchers tested the amoeba with a range of substances that produce varying degrees of emesis in humans<sup>3</sup> and observed the organism's behavioural response. Initial results have clearly indicated that the amoeba shows a strong response to a number of bitter tasting compounds that can cause taste aversion and emesis in humans and/or laboratory animals.

The researchers are now trying to gain a better understanding of the cellular mechanisms involved and to confirm the validity of the model for predicting effects in humans. To test the new model, collaborators are being sought to: supply compounds for which data on nausea/vomiting are available, provide advice on using the test in a pharmaceutical setting, and help develop the test into a validated screen.

*(more...)*

#### **SCIENCE IN THE SERVICE OF ANIMAL WELFARE**



## UNIVERSITIES FEDERATION FOR ANIMAL WELFARE

The Old School, Brewhouse Hill, Wheathampstead, Hertfordshire AL4 8AN, UK.

Tel: +44(0)1582 831818 Fax: +44(0)1582 831414

Website: <http://www.ufaw.org.uk>

Email: [ufaw@ufaw.org.uk](mailto:ufaw@ufaw.org.uk)

*(New research...continues p2 of 2)*

Professor Robin Williams, Head of Biomedical Sciences at Royal Holloway, states “If this all proves successful then using a social amoeba to test new chemical compounds could result in a large reduction in the number of animals currently used in emetic liability tests”. This would be good news for the animals but also for pharmaceutical companies in terms of reduced costs and faster initiation of clinical studies. A better understanding of the molecular mechanisms of nausea and vomiting could also benefit other areas of human medical treatment such as the treatment of cancer.

This is a collaborative project between Royal Holloway University of London (Prof Robin SB Williams) and St George’s University of London (Prof Paul Andrews), funded by the UFAW 3Rs Liaison group (<http://www.ufaw.org.uk/phhsc.php>).

### References

- (1) Holmes, A. M.; Rudd, J. A.; Tattersall, F. D.; Aziz, Q.; Andrews, P. L. Opportunities for the Replacement of Animals in the Study of Nausea and Vomiting. *Br. J. Pharmacol.* **2009**, *157*, 865-880.
- (2) Williams, R. S.; Boeckeler, K.; Graf, R.; Muller-Taubenberger, A.; Li, Z.; Isberg, R. R.; Wessels, D.; Soll, D. R.; Alexander, H.; Alexander, S. Towards a Molecular Understanding of Human Diseases Using *Dictyostelium Discoideum*. *Trends Mol. Med.* **2006**, *12*, 415-424.
- (3) Robery, S.; Mukanowa, J.; Percie du, S. N.; Andrews, P. L.; Williams, R. S. Investigating the Effect of Emetic Compounds on Chemotaxis in *Dictyostelium* Identifies a Non-Sentient Model for Bitter and Hot Tastant Research. *PLoS. One.* **2011**, *6*, e24439.
- (4) Stern, R.M., Koch, K.L., Andrews, P.L.R. 2011. *Nausea-Mechanisms and Management*. Oxford University Press, New York, USA. Pp 462.

-ENDS-

### Media contact:

Dr Robert Hubrecht, Deputy Director, UFAW. Tel: 01582-831818, email [hubrecht@ufaw.org.uk](mailto:hubrecht@ufaw.org.uk)

### Note to Editors:

Current members of the UFAW 3Rs Liaison Group are:

AstraZeneca; Covance; GlaxoSmithKline; National Centre for the Three Rs (NC3Rs); Novartis; Pfizer; RSPCA; UFAW. UFAW is grateful to previous members of the Group who also contributed to this project.

The Universities Federation for Animal Welfare (UFAW) is an internationally recognised, independent scientific and educational animal welfare charity. It works to improve knowledge and understanding of animals’ needs in order to achieve high standards of welfare for farm, companion, research, captive wild animals and those with which we interact in the wild.

UFAW improves animal welfare worldwide through its programme of awards, grants and scholarships; by educational initiatives, especially at university and college level; by providing information in books, videos, reports and in its scientific journal *Animal Welfare*; by providing expert advice to governments and others, including for legislation and ‘best practice’ guidelines and codes; and by working with animal keepers, scientists, vets, lawyers and all those who care about animals.

## SCIENCE IN THE SERVICE OF ANIMAL WELFARE

Chief Executive and Scientific Director: James K Kirkwood BVSc PhD CBiol FIBiol MRCVS

Secretary: Donald C Davidson

Registered Charity No. 207996 (Registered in England) and Company Limited by Guarantee No. 579991