The Academy of Medical Sciences

Media Release

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Inter-species embryo research vital for understanding and treating human disease

A report by the Academy of Medical Sciences has concluded that research involving inter-species embryos (human embryos containing animal material) should be permitted under regulation, to develop tools for understanding human development and to further our knowledge of nuclear transfer techniques and human embryonic stem (ES) cells.

Professor Martin Bobrow CBE FRS FMedSci, Chair of the working group that undertook the study said: '*UK legislation permits research on human embryos under licence from the HFEA up to 14 days in the laboratory. Re-implanting human embryos into a woman or animal is not permitted. There are no substantive ethical or moral reasons not to proceed with research on human embryos containing animal material under the same framework of regulatory control.*

'*Provided good laboratory practice is rigorously followed, research involving cytoplasmic hybrids or other inter-species embryos offers no significant safety risks over and above regular cell culture research*.'

The report highlights how nuclear transfer techniques, which allow the genetic composition of human ES cells to be controlled, are an essential step to increasing our understanding of diseases ranging from developmental abnormalities in young children to some types of cancer, as well advancing drug discovery and eventual individualised cell therapy.

The donation of human eggs for nuclear transfer research is limited by the clinical demands of infertility treatment and the invasiveness of the procedures involved. The report argues that using animal oocytes - to create cytoplasmic hybrid embryos

from which human ES cells could be derived - would allow research to progress more rapidly and spare the use of valuable human eggs.

Professor Bobrow added, '*We found no current scientific reasons to generate 'true' hybrid embryos by mixing human and animal gametes. However, given the speed of this field of research, the working group could not rule out the emergence of scientifically valid reasons in the future.'*

While legislation currently under consideration in the UK covers research involving human embryos, including those incorporating animal material, the report highlights the regulatory questions that may arise in the future from research involving non-human embryos and animals incorporating human material.

The Academy report concludes that current UK activity in this area is adequately covered by existing mechanisms for regulating animal research through the Home Office. However, it will become necessary to consider the appropriate conceptual and regulatory framework for transgenic and chimeric animals that contain significant amounts of human genetic material.

Professor John Bell, President, Academy of Medical Sciences said: '*Further public discussion of these issues over the coming years will be important. The Academy is committed to taking forward a programme of scientific and public engagement work to ensure that the methods and goals of this research are clearly communicated and that science progresses with the support of society.'*

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For further information, please contact:
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Notes for Editors

The independent Academy of Medical Sciences promotes advances in medical science and campaigns to ensure these are translated into benefits for patients. The Academy's eight hundred Fellows are the United Kingdom's leading medical scientists from hospitals, academia, industry and the public service. Further details may be obtained from Academy of Medical Sciences, 10 Carlton House Terrace, London SW1Y 5AH. Tel: 020 7969 5288; Fax: 020 7969 5298; email see website: www.acmedsci.ac.uk

The Academy of Medical Sciences launched a short study into research on embryos combining human and non-human material (hybrid/chimera embryos) following the

publication of the Government's White Paper 'Review of the Human Fertilisation and Embryology Act: Proposals for revised legislation' and the announcement of a public consultation into 'human-animal hybrid research' by the Human Fertilisation & Embryology Authority (HFEA).

The terms of reference were:

- To agree definitions of embryos combining genetic material from more than one individual, particularly those combining human and non-human material, and identify relevant research protocols.
- To identify key opportunities for research using such embryos, and cells derived from them, together with an assessment of how these opportunities are balanced by safety and ethical concerns.
- To provide recommendations where appropriate.

Working Group Membership:
Professor Martin Bobrow CBE FRS FMedSci (Chair), Emeritus Professor of Medical Genetics, University of Cambridge
Professor Allan Bradley FRS FMedSci, Director, Wellcome Trust Sanger Institute, Cambridge
Professor Peter Braude FMedSci, Head, Department of Women's Health, King's College London
Sir Martin Evans FRS FMedSci, Professor of Mammalian Genetics, University of Cardiff
Dr Peter Goodfellow FRS FMedSci, Professor John Harris FMedSci
Sir David Alliance Professor of Bioethics, University of Manchester
Professor Peter Lipton FMedSci, Hans Rausing Professor of History and Philosophy of Science, University of Cambridge
Dr Robin Lovell-Badge FRS FMedSci, Head of Division of Developmental Genetics, MRC National Institute of Medical Research
Professor Anne McLaren DBE FRS FMedSci, Senior Research Associate, Wellcome Trust/Cancer Research UK Gurdon Institute, Cambridge
Professor Martin Raff FRS FMedSci, Emeritus Professor, MRC Laboratory of Molecular Cell Biology, Cambridge
Professor Austin Smith FRS, Director, Wellcome Trust Centre for Stem Cell Research, Cambridge
Professor Doug Turnbull FMedSci, Professor of Neurgoloy, University of Newcastle-upon-Tyne
Sir Greg Winter FRS FMedSci, Head of Division, Protein & Nucleic Acid Chemistry Department, MRC Laboratory of Molecular Cell Biology, Cambridge
Dr Helen Munn (Secretariat), Policy Manager, Academy of Medical Sciences

Representatives from the Medical Research Council, Wellcome Trust and Royal Society also attended meetings as observers.