

## Stem cells drug testing predicted to boom under Obama

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Embryonic stem cells could provide a new way of testing drugs for dangerous side effects, according to a leading British researcher.

Speaking at the British Pharmacological Society's Winter Meeting in Brighton today (Thursday, 18 December), Christine Mummery, Professor of Developmental Biology at Leiden University Medical Centre in The Netherlands, predicts that what is currently a small and sparsely funded research area will boom in coming years.

Her views have been buoyed by the victory of US President-elect Barack Obama, who is an ardent supporter of stem cell research. The researcher also believes the UK and Europe is well placed to be at the forefront of this exciting new research area.

Professor Mummery says that it typically costs \$1 billion and takes 10 years to get a new drug to market. Before any tests or trials take place on patients, millions of chemical compounds are tested on cells in the laboratory, in a bid to detect adverse effects.

For potential drugs to treat heart disease various cell types are used for the preliminary screening - but in the second round of testing, heart cells are necessary. At the moment the only way to do this is using heart cells from animals.

But Prof Mummery believes that since researchers are able to make unlimited human heart cells from embryonic stem cells, they offer a

viable and scientifically exciting alternative.

She said: "Many drugs meant to treat other complaints also have side effects on the heart, sometimes with fatal consequences. There are recent examples of drugs being withdrawn from the market because they caused sudden cardiac death in some patients.

"Regulators now require that drugs be tested for potential effects on the heart before going to market. At present the pharmaceutical industry has no alternative but to do this using heart cells from animals.

"With the research that is now on-going in several parts of the world, including the UK, we believe using human heart cells from human embryonic stem cells can become a good and viable alternative. From a scientific point of view, it makes much more sense to use human stem cells to model human hearts."

Prof Mummery says the UK has already recognised the potential for stem-cell based drug testing by established a special public-private research programme called 'Stem Cells for Safer Medicine' or SC4SM.

She adds: "It is only a relatively small amount of money at present but it is a start. This is clearly an emerging field that will be of importance to the pharmaceutical industry, which has been reserved in embracing human embryonic stem cell technology until now because of the ethical objections from the US, where many of them have their main base.

This is something that is expected to change very rapidly in the coming months following the election of Barack Obama.

"The UK has a head start in terms of being able to provide the technology. Working with partners across Europe, we think we can make a significant impact in terms of providing good assessment systems

comparable with existing methods for predicting drug risk to the heart and discovering whether there are beneficial effects."

The potential for stem cell technology to be used in testing new drugs will be explored by both Prof Mummery and Dr Chris Denning, from the University of Nottingham, during a special symposium entitled, 'Mending a broken heart: advances and challenges of stem cell therapy,' at the British Pharmacological Society (BPS) Winter Meeting.

The symposium will also explore and discuss the challenges that lie ahead for those seeking to develop safe stem cell-based human therapies. The full list of presentations can be found below.

Source: University of Manchester

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