

Top professor reports new way to discover drugs that aid regenerative medicine

July 11 2010

Professor Fiona Watt will today give the Anne McLaren Memorial Lecture at the UK National Stem Cell Network annual science meeting and will detail a new approach to screening for drugs that target stem cells. To begin with, this is being developed for adult skin stem cells, giving hope for new drugs to promote wound healing and aid the use of stem cells to, for example, treat severe burns. This technique can also be applied to a wide range of stem cells, opening up the possibilities for harnessing stem cells in regenerative medicine.

Professor Watt said "We are very interested in developing regenerative medicine as a way to heal our bodies when they can't heal themselves - when the damage from an injury or disease is too severe, for example. For this type of approach to be successful it is important to have powerful ways of identifying the processes that stimulate [stem cells](#) to renew themselves or mature into the cells that are needed for healing. When we know what these processes are, we can use that knowledge to develop new treatments.

"An important part of developing new drug treatments in any field of medicine is being able to do early tests to see if the drug is likely to work. In [regenerative medicine](#) we are often looking for ways to test a drug to see if it has the desired effect on stem cells. What we've developed is a technique that allows us to examine individual stem cells in such a way as we can learn about their biology and also screen [new drugs](#) for their potential to encourage stem cells to repair damaged tissues."

Professor Watt will present research funded by Cancer Research UK, the Medical Research Council and the Wellcome Trust that was published recently in [Nature Cell Biology](#). This work has demonstrated how single stem cells can be encouraged to grow on finely-patterned surfaces in order to identify the biological messages that control their ability to divide and mature into any type of cell. Using this approach, Professor Watt's team at the Wellcome Trust Centre for Stem Cell Research, University of Cambridge, are uncovering the biology of adult skin stem cells. The methodology can also be applied to stem cells from a wide range of embryonic and adult stem cells.

Professor Watt concluded "In living tissues stem cells receive so many different messages from around the body that it is hard to identify which ones are most important. Our new technique involves studying a single cell in isolation, and that really helps us to identify the messages that ultimately drive the stem cell to divide or mature. And, crucially, it also gives us a powerful way of screening drugs that encourage stem cells to repair damaged tissue"

Provided by Biotechnology and Biological Sciences Research Council

Citation: Top professor reports new way to discover drugs that aid regenerative medicine (2010, July 11) retrieved 23 April 2024 from <https://phys.org/news/2010-07-professor-drugs-aid-regenerative-medicine.html>

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