

Stem Cell Technology innovation could reduce the number of animal experiments

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Researchers from the University of Bath are embarking on a project to use stem cell technology that could reduce the number of animal experiments used to study conditions such as motor neurone disease.

Dr Vasanta Subramanian, from the University's Department of Biology & Biochemistry, will be developing a technique using human stem cells to study this debilitating neurological disease, greatly reducing the number of animals used in research.

Stem cells are the precursor cells that are able to develop into more specialised cells and tissues such as neurones or skin cells.

Whilst previously most stem cells were derived from embryos, this new research project will instead use Induced Pluripotent Stem cells (iPS cells) which are made from skin cells from adults.

Dr Subramanian has been awarded a major three year grant by the National Centre for Replacement, Refinement & Reduction of Animals in Research (NC3Rs) to study ALS, a form of motor neurone disease in which the nerve cells that control the muscles die.

This currently incurable condition causes patients to lose movement in muscles, affecting breathing and eventually causing death.

Dr Subramanian will be making iPS cells from the skin cells of patients suffering from ALS to study the genes that are thought to cause the disease.

She said: "These are exciting times for stem cell research and there is tremendous potential in the iPS cell technology both for medical applications and in basic biology.

"This technology will not only help understand the mechanisms underlying the disease, but will also reduce the numbers of animals used in research.

"There is a real need to develop alternative methods for studying these diseases that are more robust and better simulate how the disease develops in humans."

The grant will fund a teaching replacement for Dr Subramanian, allowing her to focus on her research, and a research assistant to work on the project. It will also fund a state-of-the-art high power microscope that will allow the researchers to observe the movements and growth of neurones in real time.

The project is one of 13 receiving a share of a £4.5 million fund from the NC3Rs.

Dr Vicky Robinson, chief executive of the NC3Rs, said: "If we are to reduce animal use and at the same time continue to develop new treatments for diseases then we must engage the best minds and harness the best science and technology in this endeavour.

"That is what we are doing with the £4.5 million in 13 new research projects that the NC3Rs is investing in. We are really pleased to be giving grants to scientists who are trying to develop treatments in major areas of concern such as cancer, motor neurone disease and [Alzheimer's disease](#).

"If they can do this, and reduce their reliance on animal use then this has to be good news."

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