THE UNIVERSITY of EDINBURGH

News Release

Issued: 3 May 2017

FOR IMMEDIATE RELEASE

Sperm study reveals testes cells that may offer fertility hopes

Scientists have discovered a tiny group of cells that is critical to repairing damage to the testes.

Blocking the cells prevents repair to tissue involved in producing healthy sperm, the research has found.

The findings shed light on mechanisms of cell repair and could help scientists develop ways to preserve fertility, which may benefit boys receiving cancer therapy.

Male testes are extremely sensitive to damage from external factors such as radiation and chemotherapy used to treat cancer, which can lead to infertility. Damage can be repaired by internal cell mechanisms, although the process is not fully understood.

Using molecular tools, the research team removed the newly-discovered cells – known as Miwi2-expressing cells – in a group of mice. Unlike their healthy littermates, mice without Miwi2-expressing cells were not able to repair injury, highlighting their critical role in regeneration.

The research – led by the University of Edinburgh – also showed that Miwi2-expressing cells develop surprising features in response to damage, making them behave like stem cells. Stem cells are known for their central role in tissue repair.

Insights from the study may assist future infertility options for pre-pubescent boys undergoing cancer treatment and for whom sperm banking is not an option.

Professor Dónal O'Carroll, stem cell biologist at the University's MRC Centre for Regenerative Medicine, said: "In identifying this key group of cells, we have made a significant step in understanding cell repair in the testes.

"Our study with mice suggests that it may be beneficial to also freeze additional cells in order to maximise chances of future treatments. Our next step is to identify the equivalent group of cells in humans."

The study – supported by the European Research Council – was carried out in collaboration with the University of Oxford and the European Molecular Biology Laboratory in Italy. The findings are published in the *Journal of Experimental Medicine*.

For further information, please contact:
Kate McAllister, Press & PR Office, tel 0131 650 6357, email Kate.McAllister@ed.ac.uk