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## Are the seeds of testicular cancer sown before birth? New technique opens door to further study

Scientists at the Medical Research Council (MRC) have developed a new method to investigate how human testes develop in baby boys before they are born. MRC researchers obtained ethical approval to take testicular tissue from fetuses donated after termination. This tissue was then grafted into mice and cells developed normally, as if inside a womb, over a six week period. This landmark advancement will allow scientists to study what factors could lead to testicular germ cell cancer (TGCC).

Although testicular cancer occurs in young men, it originates because of the abnormal development of germ cells – cells that go on to become sex cells – in fetuses, but how and why this occurs has been impossible to explore with current research techniques. Testicular germ cell cancer (TGCC) is the commonest cancer of young men in their 20s and 30s – and cases are increasing.

Professor Richard Sharpe, Principal Investigator at the MRC Human Reproductive Sciences Unit in Edinburgh and supervisor of the study said:

*“Without the support of donors and medical research volunteers, scientific advancements like these would not be possible, and scientists remain indebted to the huge contribution from members of the public. This vital work will take research into testicular cancer to a new level. We now have a viable system that enables us to test what factors might interfere with development. It will help us to investigate, for example, whether common environmental chemicals, that fetuses are exposed to in the womb, play a role in the development of testicular cancer – an aspect that simply could not have been studied before.”*

Professor Stephen Holgate, Chair of the MRC's Population and Systems Medicine Board said:

*“Developing new tools to open avenues of scientific study is a vital part of the MRC's work. Understanding how we develop, even before birth, and how this relates to disease in later life is crucial to improve our long term health.”*

In future, the scientists hope that the mouse model can be modified to investigate other conditions such as sexual development disorders (DSDs).

The paper, 'Xenografting of human fetal testis tissue: a new approach to study fetal testis development and germ cell differentiation' is published online in the journal *Human Reproduction* today.

Ends

For more information contact the MRC Press Office on  
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### Notes to Editors

1. For almost 100 years the Medical Research Council has improved the health of people in the UK and around the world by supporting the highest quality science. The MRC invests in world-class scientists. It has produced 29 Nobel Prize winners and sustains a flourishing environment for internationally recognised research. The MRC focuses on making an impact and provides the financial muscle and scientific expertise behind medical breakthroughs, including one of the first antibiotics penicillin, the

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structure of DNA and the lethal link between smoking and cancer. Today MRC funded scientists tackle research into the major health challenges of the 21st century. [www.mrc.ac.uk](http://www.mrc.ac.uk)

2. Testicular tissue was taken from fetuses aborted at nine weeks or between 14-18 weeks gestation. The women gave consent in accordance with national guidelines. None of the terminations was related to fetal abnormalities.

