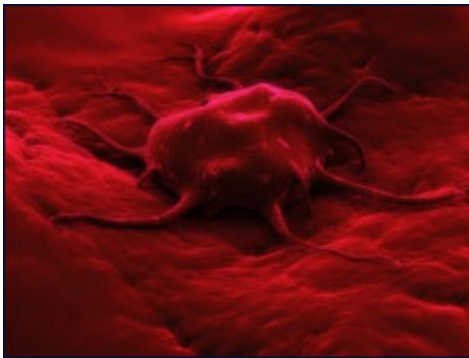


Sperm's immune-protection properties could provide link to how cancers spread

December 14 2007



The researchers think that some cancers have the same markers on them as sperm cells, which stop the human immune system attacking the cancer

Sugar-based markers on human sperm cells which may prevent them from being attacked by the female immune system could provide a vital clue to how some cancers spread in the human body, according to new research published on 14 December 2007.

The new research, currently available online in the *Journal of Biological Chemistry*, analysed these markers which are believed to tell the female immune system that the sperm are not dangerous pathogens, and therefore should not be attacked by the woman's white blood cells during the reproductive process.

The study, led by Imperial College London and the University of Missouri, suggests that these sugar markers can be universally recognised by all human immune systems, regardless of the individual.

Professor Anne Dell from Imperial College London's Department of Life Sciences, one of the study's lead authors, said: "Normal human cells carry chemical markers made of proteins which tell the immune system not to attack them. In the case of organ transplants, for example, doctors try to match these markers in both the donor and the recipient to prevent rejection. However, in the case of sperm cells, their sugar-based markers are different: they are recognised by everyone's immune system, meaning that no immune response is triggered during reproduction between any two people."

This kind of marker is also found on some types of cancer cells, some bacterial cells, some parasitic worms and HIV infected white blood cells. The scientists believe that these markers allow such dangerous cells and pathogens to evade destruction by the human immune system, leading to serious – sometimes fatal - illness.

Professor Dell explains that understanding how this basic biology works on sperm cells may lead to greater knowledge of how some serious diseases and infections manage to win the battle with the human immune system. She says:

"If aggressive cancers and pathogens are using the same system of universally-recognisable markers to trick the immune system into thinking they're harmless, we need to work out exactly how this interaction works. This is where we're planning to take this research next. Understanding how these markers work at a basic biological and chemical level could lead to new ways to treat or prevent cancers and other diseases in the future."

Citation: 'Expression of Bisecting Type and Lewisx/Lewisy Terminated N-Glycans on Human Sperm', *The Journal of Biological Chemistry*, 14 December 2007.

Source: Imperial College London

Citation: Sperm's immune-protection properties could provide link to how cancers spread (2007, December 14) retrieved 23 April 2024 from <https://phys.org/news/2007-12-sperm-immune-protection-properties-link-cancers.html>

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