

18 March 2008

By: Stefan Anitei, Science Editor



i.treehugger.com

## **This Is the Time to Become a Male: 8-14 Weeks of Pregnancy**

### *Under the action of testosterone*

We all start as egg cells. And after being fertilized, based on the information of the sex chromosomes, the new developing organism must turn into a male or a female. A new research published in "Journal of Clinical Investigation" shows that testosterone, the male hormone, is responsible for turning an embryo into a male during a window of time before male genitalia begin to develop, and that impeding its action in that time period can result in male genitalia birth defects.

The team led by Michelle Welsh at The Queen's Medical Research Institute (UK) has found that in rats, the testosterone triggers the masculinization of the embryo during a window of time just before the male genitalia develop. If its activity is impeded during this period of time, the impact is the development of cryptorchidism and hypospadias, both conditions being linked with a shorter ano-genital distance (AGD).

The researchers correlated the timing in rats with human gestation, finding that the approximative equivalent window in humans would be 8-14 weeks of pregnancy.

These issues, connected to a shorter AGD, point that by accounting neonatal AGD in human newborns could represent a noninvasive way to detect individuals at risk of developing genital defects.

Cryptorchidism, when one or both testes are not descended into the scrotum, and hypospadias or hyperspadias, the abnormal locations of the opening of the urethra (on the lower or upper part of the penis), are common birth defects of the male genitalia and their percentage has been increasing in the last decades, because of contamination with hormone mimicking products. These conditions represent risk factors for male sterility (because of low sperm count) and testicular cancer.

Testosterone is known to determine the masculinization of the fetus, including the development of the male genitalia, but how its lack causes the developmental defects is not clear.