

Mice can transmit fear to their offspring through sperm

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A study has shown that mice can transfer fear to specific odours through their sperm to their offspring and grand offspring. Epigenetics are changes in the expression of DNA which are not caused by changes in the DNA sequence. Through epigenetics parents can transmit useful information of the environment to their offspring. Researchers Brian Dias and Kerry Ressler from the Emory University School of Medicine in Atlanta, Georgia, tested whether fears can be transmitted to offspring in mice through non-genetic inheritance.



New generations of trained mice showed a 200 per cent stronger response than the offspring of untrained mice

The researchers trained male mice to associate a cherry blossom odour to shocks. Then they allowed these males to mate and tested the response of their offspring and grand offspring to this odour.

The new generations of mice showed a 200 per cent stronger response than the offspring of untrained mice, even though they have never been exposed to it before. To understand what triggered this fear the team investigated changes in a gene that influences the smell to cherry blossom.

Although the genetic code of this gene remained unchanged, it had epigenetic marks that affected its behaviour, triggering it to express more. The challenge now is to understand how widespread this phenomenon is, and if a similar intergenerational transmission influences the expression of phobias and anxieties in humans.

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