

Love at first ... smell

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Why do some males smell better than others? Scientists at Cardiff University, in collaboration with colleagues at Max-Planck Society, Germany – and the help of stickleback fish - have identified the chemical responsible.

The researchers found in a study of sticklebacks, that males with body odour that is particularly attractive to females produce small protein fragments (known as "peptides").

To prove this, the researchers produced a synthetic "perfume" containing a mixture of protein fragments. By manipulating the combination of fragments in the perfume, the sexual attractiveness of males could be increased. In the experiment none of the females being tested could see the males. Even males previously rejected by females were rendered irresistible after the synthetic perfume had been applied.

Smell is important when choosing a partner, not only for humans but also fish. To fight disease, the body's Major Histocompatibility Complex (MHC) molecules identify a disease as a foreign invader. Different MHC molecules fight different diseases, so it's important to have a mix of MHC types. Females use smell to identify partners with suitable MHC molecules: choosing only males with the correct mix of immune genes critical for the survival of future offspring.

In the experiment females were fooled by the protein fragments into believing that males with insufficient MHC molecules would provide offspring with the ideal number of MHC types. However, when the perfume was added to males that already had the ideal range of MHC molecules, females could also be fooled into believing that these males

smelled repulsive: having too many immune genes for offspring.

Dr Sibn Griffiths, Cardiff School of Biosciences said: "Since sticklebacks use the same molecules to communicate information about their immune system as other vertebrates, this experiment can be assumed to be important for many animals, including humans. Humans have used perfumes for thousands of years. However, it seems that our choice of perfume should depend on our MHC genes. Perhaps these results explain why some perfumes smell good on some people and terrible on others."

Professor Thomas Boehm, Max-Planck Society said: "The new results raise the question of whether humans can also gather information about MHC on the basis of peptides."

Source: Cardiff University

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