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Towards Treating Female Sexual Dysfunction: Research Reveals Secrets of Female Sexual Arousal

By using a novel prototype drug, researchers have discovered more about the mechanisms underlying female sexual arousal. These findings are published today in the *British Journal of Pharmacology.*

A team of researchers based at Pfizer's labs in Sandwich, Kent, found that electrically stimulating the pelvic nerve increases blood flow to the genitalia, and that this effect was enhanced if they also gave a prototype drug (UK-414,495). They believe that the drug acts by blocking the breakdown of an internal chemical messenger that plays a key role in increasing blood flow during sexual arousal.

When women become aroused, blood flow increases to the vagina, labia and clitoris. This causes the organs to swell, and the vagina to relax, as well as increasing vaginal lubrication and the sensitivity of the genitalia.

Female sexual arousal disorder (FSAD) affects up to 40% of women irrespective of age. These women find that their genital organs do not respond to sexual stimulation, they find arousal difficult and this causes them to become distressed.

"Before this work, we knew surprisingly little about the processes that control all of these changes," says the lead researcher in the project Chris Wayman. "Now we are beginning to establish the pathways involved in sexual arousal scientists may be able to find ways of helping women who would like to overcome FSAD."

This is early stage research involving experimental studies using an animal model of sexual arousal. In it researchers stimulated the pelvic nerve and measured changes in genital organs. They believed the genital arousal occurred because stimulation of the nerve triggered the release of vasoactive intestinal peptide (VIP), a well-known neurotransmitter. VIP has only a short-lived effect, because it is soon broken down by an enzyme called Neutral Endopeptidase (NEP). The researchers believe that their prototype drug increased the arousal because it blocked NEP's ability to break down VIP, therefore letting the VIP have a more powerful and prolonged effect increasing arousal.

The results look all the more exciting because, while the drug did increase the level of sexual arousal, it didn't affect arousal in the absence of stimulation or the rest of the body's cardiovascular system. This suggests that this sort of drug would have a

good chance of being safe to use in women, and would only work when combined with sexual stimulation.

“While the particular chemical compound studied in this research did not prove appropriate for further development, the implications of the research could lead to the development of a product in future, although Pfizer has no current plans to develop medicines for FSAD,” added Wayman.

This study is published in the *British Journal of Pharmacology*. Media wishing to receive a PDF of this article may contact medicalnews@wiley.com

Full citation:
C.P. Wayman, D. Baxter, L. Turner, P.H. Van Der Graaf and A.M. Naylor; *UK-414,495, a selective inhibitor of neutral endopeptidase, potentiates pelvic nerve-stimulated increases in female genital blood flow in the anaesthetized rabbit*; British Journal of Pharmacology 2010; DOI: 10.1111/j.1476-5381.2010.00691.x

About the Author:
Dr. Chris Wayman is currently a Research Fellow at Pfizer Global Research and Development, Sandwich, United Kingdom. He led the Sexual Health Therapeutic Area, which has the remit of identifying and validating new therapies to treat male and female sexual dysfunctions.
To arrange an interview with Dr. Wayman, please contact Andrew Widger, Associate Director Communications UK/Europe for Pfizer on +44 (0) 1737 330909 or andrew.widger@pfizer.com

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The *British Journal of Pharmacology* is a broad-based journal giving leading international coverage of all aspects of pharmacology research. Its scope includes: molecular and cellular pharmacology, neuropharmacology, cardiovascular and pulmonary pharmacology, pharmacokinetics, drug metabolism, toxicology, gastrointestinal pharmacology, cancer pharmacology, inflammation and immunopharmacology, genitourinary and renal pharmacology, endocrine pharmacology, drug discovery, biopharmaceuticals and methods and techniques. *BJP*’s 2008 Impact Factor is 4.902 (Thomson Reuters Science Citation Index). The *British Journal of Pharmacology* can be accessed at www.brjpharmacol.org

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