

Treatment for overactive bladder and irritable bowel syndrome advanced through pioneering research

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Researchers at the University of Surrey have discovered how the receptors responsible for contractions in the bladder, regulate the body's clock genes.

The new study, published today in *The FASEB Journal*, has found that this clock activity in turn regulates the cycle of all cells in the body. The team of researchers also discovered that the local biological clock and its control are weakened in ageing bladders, demonstrating the importance of the clock in bladder physiology and ageing.

While currently much is known about the central [biological clock](#), little is known about the peripheral clocks in the body. This latest research challenges the long-held view that the central clock of the brain controls all the peripheral clocks in other parts of the body and that these in turn control the down-stream receptor molecules which generate specific cell activities, such as contraction, secretion and metabolism. However, researchers have found that receptors in the bladder, a muscular hollow organ in the body, exert control over the local clocks. The control of organ function via an interaction between the peripheral clocks and the receiving receptors is an important finding for understanding the pathology and development of new treatments for common diseases of the bladder, such as bladder overactivity and irritable bowel syndrome.

The team also believes the study will help advance understanding of how

ageing affects [organ function](#) in the body as the normal control of daily rhythms by the clock is weakened in ageing tissue.

"Previously, people have believed that the brain 'master' clock controls the 'slave' [peripheral clocks](#), but our study is the first to show that in a contractile organ, such as the bladder, its receptors also control these clocks," said lead author Dr Changhao Wu from the University of Surrey.

"By influencing the receptors in the bladder, we can also change our [clock genes](#). These clocks are crucial in maintaining our physiological rhythm and preventing unwanted activities associated with an overactive [bladder](#)."

Provided by University of Surrey

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