

Japanese find body 'clock' that controls jet-lag

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Singapore: Scientists at Kyoto University, Japan, have discovered the 'reset button' in the brain, which could be used to switch the master clock of the human body to a new time zone in just one day. The research has taken scientists a step closer to tweaking the clock in order to make jet lag and shift work less painful. The findings could reduce the symptoms of travelling through different time zones and working unsociable hours, which often makes people either tired or unable to sleep. The research has been published in journal *Science*.

The Kyoto University team found that there are clocks located throughout the body but the master clock is found within the brain, where it works to keep the body in tune with the world around us, creating fatigue at night and alertness during daylight. The clock uses light to monitor time, but adjusts slowly. For every time zone travelled, it takes the body approximately a full day to catch up.

The scientists highlighted that the master 'clock' is comprised of a group of about 10,000 brain cells that communicate with each other in order to control the time. By interfering with the vasopressin receptors allows the clock to move more rapidly. The team, which was led by Dr Yoshiaki Yamaguchi, examined genetically modified mice with no vasopressin receptors and found they were able to re-adjust clocks that have been put back eight days within one day.

Normal mice took six days to adjust and eight days if their clock was put forward eight hours. Mice without vasopressin receptors again managed to re-adjust their clocks more rapidly and adjusted within two days.

The authors of the research concluded that, "Jet lag is a blessing to circadian biologists because the disruption of mental and physical well-being immediately highlights the importance of our internal "body clock." It is also a curse because jet lag has so far eluded attempts at a cure. Mice lacking receptors for the neuropeptide arginine vasopressin (AVP) are resistant to jet lag, providing new hope of overcoming this modern malaise. Not only may this help us recover from symptoms of jet lag, but it should also help unravel the neural circuit that sets the tempo to our lives."