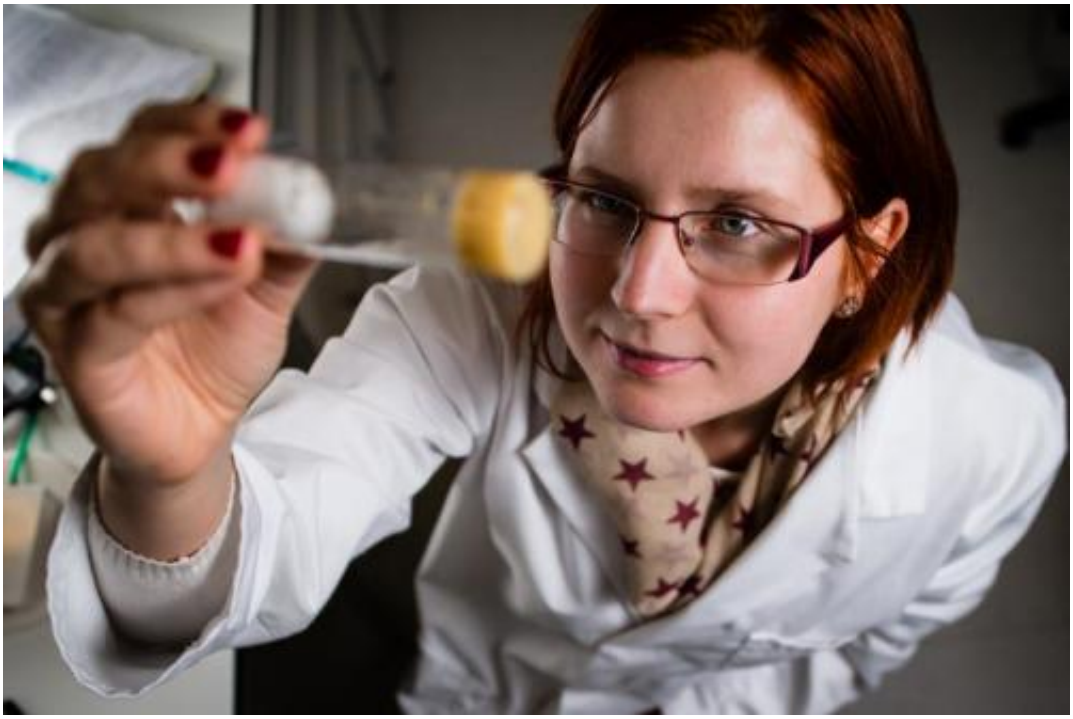
Fruit fly research to provide new insight into our body clock and its biological impact

May 23 2014



This is Karolina Mirowska, University of Southampton. Credit: University of Southampton

New research at the University of Southampton into how animals keep time through their internal circadian rhythms could help us understand why we sleep and how we cope with jet lag.

Biological scientist Dr Herman Wijnen uses the fruit fly *Drosophila*

melanogaster as an experimental model as the molecular and cellular 'clock' mechanisms of insects closely resemble those of mammals, including humans. As these biological clock systems not only control sleep, but also influence functions such as blood pressure and metabolic rate, they could give us greater insight into many medical conditions.

Dr Wijnen, who has just been awarded two new grants collectively worth around £500,000 to support his research, says: "This project has the potential of discovering new aspects of the timing of sleep/wake rhythms in both animals and humans."

The €100,000 European Union Marie Curie Career Integration Grant will allow a new PhD researcher to follow up on studies of sleep/wake behaviour by current Southampton postgraduate researcher, Karolina Mirowska. Together with other members of Dr Wijnen's laboratory, Karolina discovered a developmental role in flies for one of the molecular clock components that is also found in humans.

The availability of powerful assays and convenient culture conditions make the fruit fly system ideally suited for the planned laboratory research.

In addition, Dr Wijnen has been awarded approximately £431,000 from the Biotechnology and Biological Sciences Research Council (BBSRC) to study the way that fruit flies synchronise their rhythms to daily environmental temperature cycles. He explains that "This research could provide valuable insights in the way that the behaviour and life cycle of harmful insects, such as agricultural pests and disease vectors, is governed by temperature. What's more, the clocks of flies and humans are connected to temperature response mechanisms by the same regulatory component. So we may even learn something about the way that our own body temperature rhythms are used as daily time cues."

Provided by University of Southampton