

## EDITORIAL

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### FROM NOBEL PRIZE TO BEDSIDE

– “And the Nobel goes to ... the circadian clock!”

On Monday 3 October 2017, The Nobel Assembly at Karolinska Institutet decided to award the 2017 Nobel Prize in Physiology or Medicine jointly to Jeffrey C. Hall, Michael Rosbash and Michael W. Young for their discoveries of molecular mechanisms controlling the circadian rhythm (1, 2). Hall and Young graduated in biology and Rosbash in chemistry, but their research work using fruit flies as a model organism has borne fruit and contributed not only to medicine at large, but also to psychiatry.

– “The key fourth awardee here is, as some of us call them, the little fly.” Jeffrey C. Hall popped up this flying sentence, or this tag, in his Nobel Lecture. The little fly refers to *Drosophila melanogaster* which was the model organism in their work. It is a diurnal animal being active during the day and sleeping during the night. Hall named a fifth awardee as well, and it was the rhythm itself. Why is the circadian rhythm a key to medical conditions or psychiatric disorders?

Circadian disruption is not a rare phenomenon affecting only shift workers or international travellers but is common in the general population, and therefore has broader implications for public health than is generally appreciated (3). Due to the east-to-west movement of the sun, increasing distance west within a time zone may be a source of circadian disruption through light exposure delaying the endogenous circadian phase, leading to misalignment between biological time and social time. Circadian disruption due to residence in a western region of a time zone may impact late (“night owls”) more than early (“morning larks”) chronotypes, the former having increased odds for a range of health hazards (4). Further studies to investigate the relationship of time zone position to, e.g., winter depression, insomnia, obesity, type 2 diabetes, cardiovascular endpoints and mortality are thus justified.

The three Nobel laureates were among the first to start mapping the genes which contribute to behaviours, so to begin the work in the field of behaviour genetics. However, they became the target of mockery and their work was ridiculed. Their approach to study circadian clocks was disparaged in public by others, even by other rhythm researchers, saying that they were wasting their time: the work was regarded as silly and maybe even worthless. For the great majority of their career people did not know about their work, or did not care about it, or if people knew a bit about it, it was seen as nonsense. Hearing this negativity, they decided to just keep going, because they wanted to, knew how to, thought their work was worth doing and found that there was almost no competition in the field and so the road was open to a treasure (5–7).

Because this is science, this journey of exploration continues, of course, all the time on the lines laid down by Rosbash (8), by Young (9) [Hall has retired,] and by many others as evidenced, e.g. in (10). Right now, we have seen the ignition but only have lift-off thus far. So, when and where will there be a landing, and by whom?

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