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MEDICINE PRIZE

3 Americans win Nobel for shedding light on sleep cycles

STOCKHOLM

US geneticists Jeffrey C. Hall, Michael Rosbash and Michael W. Young were awarded the Nobel Medicine Prize Monday for shedding light on the biological clock that governs the sleep-wake cycles of most living things.

The team's work revealed the role of genes in setting the "circadian clock" which regulates sleep and eating patterns, hormones and body temperature, the Nobel Assembly said.

"Their discoveries explain how

plants, animals and humans adapt their biological rhythm so that it is synchronised with the Earth's revolutions."

All life on Earth is tuned to the rotation of our planet. Scientists have long known that living organisms, including humans, have an internal timekeeper that helps them anticipate and adapt to the rhythm of the day.

Hall, 72, Rosbash, 73, and Young, 68, "were able to peek inside our biological clock and elucidate its inner workings," the Nobel jury said.



Other prizes on the way

Nobel Assembly to announce other awards this week

3 October: Physics

4 October: Chemistry

5 October: Literature

6 October: Peace Prize

9 October: The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel

They identified genes that regulate the clock, and the mechanism by which light can synchronise it.

Rosbash told Swedish Radio he was rattled when the committee's call woke him from his sleep at 5:10 am.

"I was called on the landline next to my bed which never rings unless someone has died or something of this magnitude happens," he recounted. "I was restless, both literally and figuratively. My wife said: 'Please start to breathe'."

The circadian clock is what causes jetlag - which happens when our internal clock and external environ-

ment move out of sync as we change time zones.

It also regulates sleep, which is critical for normal brain function. Circadian dysfunction has been linked to depression, bipolar disorder, cognitive function, memory formation and some neurological diseases.

Using the fruit fly as a model organism, this year's laureates isolated a gene that controls the daily biological rhythm. "They showed that this gene encodes a protein that accumulates in the cell during the night and is then degraded during the day," the Nobel team said. *AFP*