

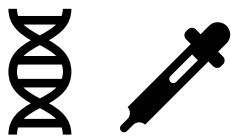
The 2017 Nobel Prize in Physiology or Medicine

Since 1901 the Nobel Prize has been presented to the Laureates each December 10, but in October we learn who they are.

Alfred Nobel and the Nobel Prize

Alfred Nobel lived between 1833 and 1896. During his lifetime he made many inventions, with the best-known being dynamite.

Alfred Nobel was thus an inventor, but also a chemist, entrepreneur and industrialist. When he died, he left behind a large fortune. In his will, Nobel declared that a large part of this money should be used to establish a prize for “those who shall have conferred the greatest benefit to mankind.” The Nobel Prize is divided into five equal parts, of which Physiology or Medicine is one. The Nobel Prize in Physiology or Medicine is awarded to those who “shall have made the most important discovery” in one of these fields.



The Nobel Prize in Physiology or Medicine

Alfred described himself as suffering from poor health. He often had indigestion problems, and late in life he had heart problems. His physician prescribed a medicine that contained nitroglycerine.

This was probably a correct prescription – even today there are heart medicines that contain nitroglycerine. We don’t know why Alfred Nobel chose the Prize categories listed in his will, since he only describes WHAT should be rewarded and not why.



The 2017 Physiology or Medicine Prize

This year’s Nobel Prize in Physiology or Medicine goes to three Americans, Jeffrey C. Hall, Michael Rosbash and Michael W. Young, for their discoveries of molecular mechanisms controlling the circadian rhythm.

For many years we have known that living organisms adapt to the regular rhythm of the day and night, also called “circadian” rhythm. But how does this biological clock actually work? What controls the daily rhythm in each cell?

Laureates Hall, Rosbash and Young studied the genes that control our internal clock and explained how the clock works. Meanwhile they identified what proteins these genes encode. All organisms thus have a kind of self-sustaining clockwork that adapts and prepares all our biological functions to what is happening at different times of day and night.

For example, this clock affects sleep, hormone levels, body temperature and metabolism. In order to understand how our internal clock operates, they studied the genes in fruit flies. Thanks to the discoveries made by the three Laureates, today we know in great detail how the internal clock functions.

Our well-being is affected by our internal clock, which is important to our physical and mental health. An imbalance in our internal clock may increase the risk of diseases. The knowledge provided by this discovery is beneficial in itself. This knowledge creates opportunities and is essential to the development of new medicines, for example.

Discussion questions



Below are a few questions about the Physiology or Medicine Prize and the Laureates. Think about them by yourself or discuss them in groups, as your teacher suggests.

1. What organism did the Laureates study?

Sometimes researchers in physiology or medicine study humans. But sometimes it is more practical to use other organisms in order to understand how we humans function.

- Why do you think that the Laureates studied this particular organism?

2. What did the Laureates do?

Imagine that you are asked to explain the work of the 2017 Laureates to someone aged around 13.

- What did the Laureates do?
- What was new about it, and what were the results?

3. Conferring the greatest benefit to mankind

According to Alfred Nobel's will, the Nobel Prize in Physiology or Medicine should go to the person(s) who "shall have made the most important discovery" in these fields.

- What can this new knowledge lead to?
- Do you think it is something that will benefit you?
- Can it help other people in some way?
