NEWS

THE NOBEL PRIZE IN PHYSIOLOGY OR MEDICINE 2021

David Julius
Born: 4 November 1955, New York, NY, USA. Affiliation at the time of the award: University of California, San Francisco, CA, USA

Ardem Patapoutian
Born: 1967, Beirut, Lebanon. Affiliation at the time of the award: Howard Hughes Medical Institute, Scripps Research, La Jolla, CA, USA

The 2021 Nobel Prize in Physiology or Medicine was awarded jointly to **David Julius** and **Ardem Patapoutian** *for their discoveries of receptors for temperature and touch*.

One of the great mysteries facing humanity is the question of how we sense our environment. How light is detected by the eyes, how sound waves affect our inner ears, and how different chemical compounds interact with receptors in our nose and mouth generating smell and taste. How we can feel the heat of the sun, the caress of the wind, and the individual blades of grass underneath your feet. These impressions of temperature, touch and movement are essential for our adaptation to the constantly changing surrounding.

In our daily lives we take these sensations for granted, but how are nerve impulses initiated so that temperature and pressure can be perceived?

David Julius utilized capsaicin, a pungent compound from chili peppers that induces a burning sensation, to identify a sensor in the nerve endings of the skin that responds to heat. **Ardem Patapoutian** used pressure-sensitive cells to discover a novel class of sensors that respond to mechanical stimuli in the skin and internal organs.

David Julius and Ardem Patapoutian identified critical missing links in our understanding of the complex interplay between our senses and the environment.

Intensive ongoing research originating from this year's Nobel Prize awarded discoveries focuses on elucidating their functions in a variety of physiological processes. This knowledge is being used to develop treatments for a wide range of disease conditions, including chronic pain.

https://www.nobelprize.org/prizes/medicine/2021/