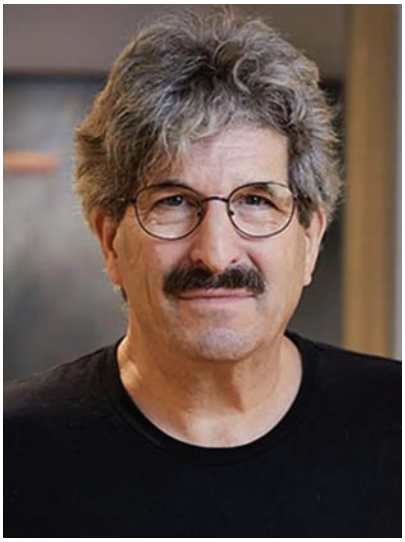
NEWS

THE NOBEL PRIZE IN PHYSIOLOGY OR MEDICINE 2024

Victor Ambros
Born: 1 December 1953, Hanover, NH, USA
Affiliation at the time of the award: UMass Chan Medical School, Worcester, MA, USA



Gary Ruvkun
Born: 1952, Berkeley, CA, USA
Affiliation at the time of the award: Massachusetts General Hospital, Boston, MA, USA; Harvard Medical School, Boston, MA, USA

The Nobel Assembly at Karolinska Institutet has today decided to award the 2024 Nobel Prize in Physiology or Medicine jointly to **Victor Ambros** and **Gary Ruvkun** *for the discovery of microRNA and its role in post-transcriptional gene regulation*.

This year's Nobel Prize honors two scientists for their discovery of a fundamental principle governing how gene activity is regulated.

The information stored within our chromosomes can be likened to an instruction manual for all cells in our body. Every cell contains the same chromosomes, so every cell contains exactly the same set of genes and exactly the same set of instructions. Yet, different cell types, such as muscle and nerve cells, have very distinct characteristics. How do these differences arise? The answer lies in gene regulation, which allows each cell to select only the relevant instructions. This ensures that only the correct set of genes is active in each cell type.

Victor Ambros and **Gary Ruvkun** were interested in how different cell types develop. They discovered microRNA, a new class of tiny RNA molecules that play a crucial role in gene regulation. Their groundbreaking discovery revealed a completely new principle of gene regulation that turned out to be essential for multicellular organisms, including humans. It is now known that the human genome codes for over one thousand microRNAs. Their surprising discovery revealed an entirely new dimension to gene regulation. MicroRNAs are proving to be fundamentally important for how organisms develop and function.

https://www.nobelprize.org/prizes/medicine/2024/press-release/