

Nobel Prize for Medicine jointly awarded to William Kaelin Jr, Sir Peter Ratcliffe and Gregg Semenza

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Nobel Peace Prize 2019 Winners: The coveted prize has been awarded to two Americans and a British scientist, namely William G. Kaelin Jr, Gregg L. Semenza, Sir Peter J. Ratcliffe, for their discoveries of "how cells sense and adapt to oxygen availability".

The 2019 Nobel Prize for Medicine has been jointly awarded to William Kaelin Jr., Sir Peter Ratcliffe and Gregg Semenza for their pioneering research into how human cells respond to changing oxygen levels.

Announcing the prize at the Karolinska Institute in Stockholm on Monday, the Nobel committee said that the trio's discoveries have paved the way for "promising new strategies to fight anaemia, cancer and many other diseases."

The importance of oxygen has long been established, the committee explained, but how cells adapt to changes in its levels remained unknown.

Randall Johnson, prize committee member, described the trio's work as a "textbook discovery."

"This is something basic biology students will be learning about when they study, at aged 12 or 13, or younger, biology and learn the fundamental ways cells work. This is a basic aspect of how a cell works and, from that standpoint alone, it's a very exciting thing."

The winners

All three scientists worked independently over a period of more than two decades to establish how cells can sense and adapt to changing oxygen availability. The 2019 prize laureates, the committee said, identified molecular machinery that regulates the activity of genes in response to varying oxygen levels.

Johnson added that the laureates had "greatly expanded our knowledge of how physiological response makes life possible" and were "necessary actors in figuring out how this whole thing works."

Explaining why the scientists were being recognized now, Johnson said their discoveries were now a "complete and clear story."

"It's very clear that we now understand this fundamental biological switch that really impacts all our lives as living creatures here on earth breathing oxygen."

New York-born Kaelin began his own research laboratory at the Dana-Farber Cancer Institute in Boston and became a full professor at Harvard Medical School in 2002.

Semenza, also born in New York, became a full-time professor at Johns Hopkins University in 1999 and since 2003 has been the Director of the Vascular Research Program at the Johns Hopkins Institute for Cell Engineering.

Ratcliffe, who was born in Lancashire, England, studied medicine at Cambridge University and established an independent research group at Oxford University, becoming a full professor in 1996.

Speaking to Nobelprize.org, Ratcliffe revealed that he was in the process of writing a grant proposal when he received the call informing him that he had won the prestigious prize.

"As with almost any discovery science the impact of that becomes evident later. We didn't foresee the broad reach of this system when we started the work," he said, adding that the award was "very satisfying."

"I'm not ecstatic about the possibility of being a public figure, if that's what one is ... I'll do my duty, I very much hope."

The three laureates will share the 9m Swedish kronor (\$907,000) equally.

- CNN