

PETER RATCLIFFE



Sir Peter J. Ratcliffe is a British physician-scientist and Nobel laureate recognized for his groundbreaking research on how cells sense and adapt to oxygen levels.

ACADEMIC AND PROFESSIONAL CAREER

Sir Peter J. Ratcliffe is internationally acclaimed for his groundbreaking discoveries in cellular oxygen sensing – work that earned him the 2019 Nobel Prize in Physiology or Medicine, alongside William Kaelin Jr. and Gregg Semenza. Trained as a nephrologist, Sir Peter has dedicated his career to understanding how cells detect and respond to changes in oxygen availability, a process fundamental to human physiology and disease.

After studying medicine at Cambridge and completing his clinical training at St. Bartholomew's Hospital in London, Sir Peter pursued a specialization in renal medicine at the University of Oxford. His research began with a focus on erythropoietin (EPO), a hormone regulating red blood cell production. This led to the revelation that oxygen-sensing mechanisms are not restricted to the kidneys but are active across multiple organs, such as the brain, the spleen and the testes.

Sir Peter's work unveiled the role of hypoxia-inducible factors (HIFs) and their regulation via prolyl hydroxylation and the Von Hippel-Lindau (VHL) protein – insights that have profoundly shaped our understanding of conditions like anemia, cancer and ischemic diseases. His findings have not only advanced fundamental biology but also informed the development of new therapies for kidney disease and other hypoxia-related disorders.

Sir Peter currently leads research at Oxford's Target Discovery Institute and the Francis Crick Institute in London. Through decades of working with creative people from diverse backgrounds, he has come to value tolerance deeply, seeing it as essential to discovery. For this reason, he regards science as one of the greatest unifying forces in the modern world.

AWARDS AND HONORS

- 2002 - Elected Fellow of the Royal Society (FRS)
- 2002 - Elected Fellow of the Academy of Medical Sciences (FMedSci)
- Member of the European Molecular Biology Organization (EMBO)
- Foreign Honorary Member, American Academy of Arts and Sciences

Recipient of major international prizes:

- Louis-Jeantet Prize in Medicine
- Canada Gairdner International Award
- Lasker Award for Basic Biomedical Research
- 2014 - Knighted for services to medicine (New Year's Honours)
- 2017 - Buchanan Medal of the Royal Society
- 2018 - Massry Prize
- 2019 - Nobel Prize in Physiology or Medicine (with William Kaelin & Gregg Semenza)
- 2020 - Member of the German Academy of Sciences Leopoldina