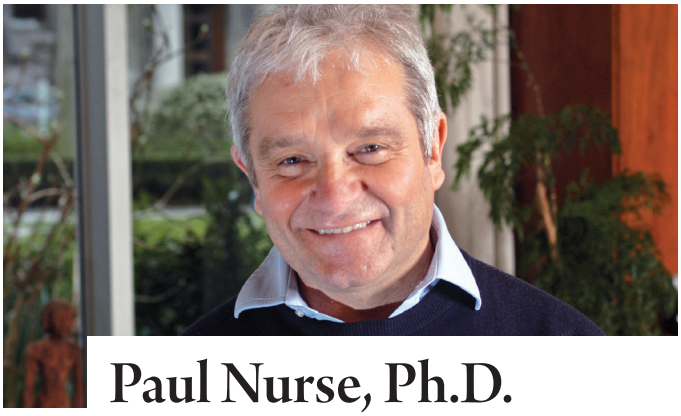

# Paul Nurse, Ph.D.

PRESIDENT EMERITUS • PROFESSOR, LABORATORY OF YEAST GENETICS AND CELL BIOLOGY

**Nurse's research focuses on the molecular machineries that control eukaryotic cell reproduction, cell growth, and cell form. Using the fission yeast *Schizosaccharomyces pombe* as a model system, his studies have led to the co-discovery of cyclin-dependent kinase as the key regulator molecule controlling S phase and mitosis—findings that have had implications for understanding reproduction, development, and cancer.**

Currently, the Nurse laboratory pursues work in three areas: the controls over the cell cycle, cell growth, and nuclear size homeostasis. The lab is split on two sites, with the major activity located at the Francis Crick Institute in London, and a smaller group located at The Rockefeller University. The Rockefeller group works mainly on combining chemical biology and genetics to investigate problems of cell biology and cancer.

In collaboration with Tarun Kapoor, the Nurse lab works on the development and use of fission yeast for chemical biology. A fission yeast strain has been constructed with compromised multidrug resistance, allowing chemical drug screens and experiments to be carried out efficiently. This strain has been used in synthetic lethal approaches to identify chemicals that influence the course of the cell cycle and cell growth. Several chemical drugs and their targets have been identified and characterized, including a chemical that inhibits fatty acid synthase and reduces nuclear membrane growth, and another that inhibits Aurora protein kinase. The latter compound has been used to demonstrate that the various functions of this kinase are triggered by different levels of activity. More recently, the researchers identified a drug inhibiting the AAA+ ATPase Midasin, a protein that has a role in assembling nucleolar precursors of the 60S ribosomal sub-unit.

Presently, the lab at Rockefeller is focused on identifying novel small molecules that influence cell proliferation and cell growth, both to better understand these processes and to generate drugs with the potential for cancer chemotherapy. The lab has established live imaging for screening of both fission yeast and human cells. A variety of small molecules have been discovered that result in delays of the cell cycle, some with effects on microtubules. The lab is now further characterizing these chemicals to determine their molecular targets, their mechanisms of action, and their potential for therapeutics.

## EDUCATION

B.Sc. in biological sciences, 1970
University of Birmingham

Ph.D. in cell biology and biochemistry, 1973
University of East Anglia

## POSTDOC

University of Bern, 1973

University of Edinburgh, 1974–1980

University of Sussex, 1980–1984

## POSITIONS

Head of Laboratory, 1984–1987
Imperial Cancer Research Fund

Professor, 1987–1993
University of Oxford

Director of Research, 1993–1996
Director-General, 1996–2002
Imperial Cancer Research Fund

Director-General, 2002
Chief Executive, 2002–2003
Cancer Research UK

Professor, 2003–
President, 2003–2011
President Emeritus, 2011–
The Rockefeller University

President, 2010–2015
The Royal Society

CEO and Director, 2010–
Francis Crick Institute

## AWARDS

Canada Gairdner International Award, 1992

Lewis S. Rosenstiel Award, 1992

Louis Jeantet Prize, 1992

Royal Medal, The Royal Society, 1995

Alfred P. Sloan Jr. Prize, 1997

Albert Lasker Basic Medical Research Award, 1998

Knighthood, Great Britain, 1999

Nobel Prize in Physiology or Medicine, 2001

Legion d'Honneur, 2002

Copley Medal, The Royal Society, 2005

Albert Einstein World Award of Science, 2013

Henry G. Friesen International Prize, 2015

## HONORARY SOCIETIES

Foreign Associate, National Academy of Sciences

American Academy of Arts and Sciences

Member, European Molecular Biology Organization

The Royal Society

The Chinese Academy of Sciences

## SELECTED PUBLICATIONS


Basu, S. et al. The hydrophobic patch directs cyclin B to centrosomes to promote global CDK phosphorylation at mitosis. *Curr. Biol.* 30, 883–892 (2020).

Patterson, J.O. et al. Noisy cell-size-correlated expression of cyclin B drives probabilistic cell-size homeostasis in fission yeast. *Curr. Biol.* 29, 1379–1386 (2019).

Kawashima S.A. et al. Potent, reversible, and specific chemical inhibitors of eukaryotic ribosome biogenesis. *Cell* 167, 512–524 (2016).

Swaffer M.P. et al. CDK substrate phosphorylation and ordering the cell cycle. *Cell* 167, 1750–1761 (2016).

Takemoto A. et al. Nuclear envelope expansion is crucial for proper chromosomal segregation during a closed mitosis. *J. Cell. Sci.* 129, 1250–1259 (2016).