

Biozentrum Lectures

Functional aspects of telomerase
on and off chromosome ends

Elizabeth Blackburn

Professor, University of California, San Francisco
Nobel Prize Laureate

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Hörsaal 1, Pharmazentrum
Klingelbergstrasse 50/70, Basel

Molecular
Life Sciences.

Functional aspects of telomerase on and off chromosome ends

Chromosome ends, called telomeres, are the DNA-protein complexes that protect the tips of chromosomes. The length attrition of telomeres serves as a unique and informative biomarker of human aging. More telomere erosion predicts worse risks for many age-related diseases and is thought to contribute directly to at least some of these diseases.

Through its activity, the enzyme telomerase can replenish telomeres as they dwindle down. To ensure continued healthy functioning of cells, in humans telomerase activity must be kept in a delicate “just right” balance, as mutations causing even quite small perturbations of telomerase activity cause high risks of various cancers. Furthermore, variants of the telomerase core protein that lack the capacity for enzymatic activity exist and are robustly expressed in normal and cancerous cells. Functional aspects of telomerase are under investigation and will be discussed.



Professor Elizabeth Blackburn is the recipient of the 2009 Nobel Prize in Physiology or Medicine for the discovery of the molecular nature of telomeres. She pioneered the study of telomeres, the specialized ends of chromosomes, and of telomerase, the enzyme that replenishes the telomeres. She is currently the Morris Herzstein Endowed Chair in Biology and Physiology in the Department of Biochemistry and Biophysics at the University of California, San Francisco (UCSF) and Non-Resident Fellow of the Salk Institute.

Prof. Blackburn received her PhD from the University of Cambridge in 1975 and did her postdoctoral work in Molecular and Cellular Biology at Yale University. In 1990 she joined the Department of Microbiology and Immunology at the UCSF, where she served as chair from 1993 to 1999. Blackburn has been recognized for her contribution to the field of telomere biology with numerous prizes, awards, and honorary degrees, including the 2006 Albert Lasker Award for Basic Medical Research and elections to the American Association for the Advancement of Science and the Institute of Medicine. In 2007, Time magazine named her one of the “100 Most Influential People in the World” and in 2008 she was the North American Laureate for the L’Oreal-UNESCO For Women In Science. Further, she has held leadership positions in several scientific societies, including her recent tenure as President of the American Association for Cancer Research.

The Biozentrum Lectures are organized by the Biozentrum, University of Basel, and were initiated in 2009. The lectures present speakers who have made outstanding contributions in the field of Life Sciences. The goal of the series is to highlight the work of these individuals in an event that brings together researchers from the entire community in Basel and its surroundings.

Past speakers in the Biozentrum Lectures series:

Andrej Sali

Vice Chair, Department of Bioengineering and Therapeutic Sciences
Professor, University of California, San Francisco

James E. Rothman

Chairman, Department of Cell Biology
Professor, Department of Chemistry, Yale University

Thomas Walz

Investigator, Howard Hughes Medical Institute
Professor, Department of Cell Biology, Harvard Medical School

Austin Smith

Director, Wellcome Trust Centre for Stem Cell Research,
University of Cambridge

Tim Hunt

Cancer Research UK,
Clare Hall Laboratories, South Mimms, Hertfordshire

Laurent Keller

Department of Ecology and Evolution,
University of Lausanne

Peter Carmeliet

Director of the VIB – Vesalius Research Center,
University of Leuven, Belgium