TNQ Distinguished Lectures in the Life Sciences
Fourteenth Edition

Wolf Prize and Canada Gairdner Award Laureate

BONNIE BASSLER

'A Chemical Language that Enables Communication Between Diverse Organisms'

New Delhi

Bengaluru

Mumbai

Register online here:
tnqdistinguishedlectures.org

Scan to register

Admission is free and open to all who register.

Professor Bonnie Bassler, the 2022 winner of the Wolf Prize in Chemistry and the 2023 winner of the Canada Gairdner Award, is the fourteenth speaker of the TNQ Distinguished Lectures in the Life Sciences.

Bonnie Bassler is a renowned molecular biologist and professor at Princeton University, best known for her groundbreaking work in the field of bacterial communication, or quorum sensing. Her research has transformed our understanding of how bacteria interact with each other and coordinate behaviour—a discovery with significant implications for medicine, environmental science, and biotechnology.

Bassler's interest in microbial communication began in the 1990s, when she and her team identified a system by which bacteria release and detect chemical signals to regulate gene expression in response to population density. This process allows bacteria to behave in a coordinated fashion, much like a multicellular organism. Her work has deepened our understanding of bacterial behaviour and holds the potential to lead to new treatments for bacterial infections and new ways to control harmful bacteria.

In addition to her research, Bassler is an advocate for science education and public outreach. She is committed to mentoring the next generation of scientists and is passionate about increasing the representation of women in science. Bassler has received numerous awards for her work, including being named a MacArthur Fellow. Through her discoveries, she has made a lasting impact on the field of microbiology and continues to shape our understanding of the microbial world.

Professor Bassler's lecture will be delivered in New Delhi, Bengaluru, and Mumbai in February 2026 and is titled
'A Chemical Language that Enables Communication Between Diverse Organisms'.

As always, admission to these lectures is free, on a first-come, first-seated basis, and is open to all who register.

ABOUT PROFESSOR BONNIE BASSLER

Bonnie Lynn Bassler was born in 1962 in Chicago, Illinois, and grew up in Danville, California. She received a BSc in Biochemistry from the University of California at Davis, and joined Saul Roseman's lab at Johns Hopkins University for her doctoral work. She was awarded a PhD for her research on bacterial chemotaxis—the movement of bacteria in response to chemical stimuli.

For her postdoctoral research in Genetics, she worked with Michael R. Silverman at the Agouron Institute, and in 1994, she joined the Princeton faculty. Today, Professor Bassler is a Howard Hughes Medical Institute Investigator and the Squibb Professor of Molecular Biology at Princeton University, where she previously served as Chair of the Department of Molecular Biology.

Professor Bassler's laboratory focuses on bacterial quorum sensing—a bacterial cell-to-cell communication process. Her group investigates molecular mechanisms in quorum sensing through an interdisciplinary approach combining genetics, chemistry, structural biology, modelling, and engineering. The group has demonstrated how bacteria, through their signaling molecules called *autoinducers*, can sense their own population density, identify their close relatives and competitors, and regulate their behaviour accordingly. Her research has also shown that bacteria communicate with cells from other organisms such as viruses and human cells through quorum sensing.

Such groundbreaking discoveries in bacterial quorum sensing have advanced our understanding of the "chemical language" of bacterial cells and their cooperation at the population level. Professor Bassler's work has opened avenues for developing anti-quorum sensing therapies as alternatives to antibiotics. It has revolutionised the field of microbiology and paved the way for addressing major challenges in medicine and public health.

Professor Bassler's research group focuses on the following goals:

1. Investigating bacterial biofilm development, morphology and growth, and biofilm dispersal
2. Understanding molecular mechanisms that bacteria use for intercellular communication
3. Developing antimicrobial agents that target quorum sensing mechanisms in bacteria

AWARDS & HONOURS

2009	Wiley Prize in Biomedical Sciences
2011	Richard Lounsbery Award
2012	L'Oréal-UNESCO Women in Science for North America
2012	Elected to the American Philosophical Society
2012	Royal Society Fellowship Award
2013	Elected Member of the European Molecular Biology Organization (EMBO)
2014	Merck Millipore Alice C. Evans Award for Leadership in Clinical Microbiology, American Society for Microbiology
2015	The Shaw Prize in Life Science and Medicine (jointly with E. Peter Greenberg)
2015	Howard Taylor Ricketts Prize
2016	Pearl Meister Greengard Prize and the FASEB Excellence in Science Award
2016	Max Planck Research Award, Alexander von Humboldt Foundation and the Max Planck Society
2016	Elected Member, National Academy of Medicine
2016	Elected Fellow of the American Society for Cell Biology (ASCB)
2018	Dickson Prize in Medicine
2018	Ernst Schering Prize
2020	Gruber Prize in Genetics
2020	Genetics Society of America Medal
2020	Feodor Lynen Award
2021	Paul Ehrlich and Ludwig Darmstaedter Prize (shared with Michael R. Silverman)
2022	Wolf Prize in Chemistry
2022	Microbiology Society Prize Medal
2023	Albany Prize (shared with Jeffrey Gordon and Dennis Kasper)
2023	Princess of Asturias Award (shared with Jeffrey Gordon and E. Peter Greenberg)
2023	Canada Gairdner International Prize (shared with E. Peter Greenberg and Michael R. Silverman)
2024	The National Medal of Science, U.S. National Science Foundation

Other resources:

https://molbio.princeton.edu/people/bonnie-l-bassler

https://basslerlab.scholar.princeton.edu/research

https://www.hhmi.org/news/tapping-bacterial-conversations

Scan to read

LECTURE
SCHEDULE 2026

New Delhi Monday, February 9, 2026	**Jawaharlal Auditorium** All India Institute of Medical Sciences (AIIMS) Campus ***Introduction by Professor Nikhil Tandon***	**4:30 pm**
Bengaluru Wednesday, February 11, 2026	**J. N. Tata Auditorium** Indian Institute of Science (IISc) Campus ***Introduction by Professor Usha Vijayraghavan***	**4:30 pm**
Mumbai Friday, February 13, 2026	**Homi Bhabha Auditorium** Tata Institute of Fundamental Research (TIFR) Campus ***Introduction by Professor Vidita Vaidya***	**4:30 pm**

The TNQ Distinguished Lectures in the Life Sciences

The TNQ Distinguished Lectures in the Life Sciences are annual events, and one of the main outreach programmes organised by TNQ Foundation. These lectures bring life scientists, at the forefront of their fields, to India to deliver lectures in up to three cities each year. The lecture series provides an opportunity for members of the Indian life science community to interact face-to-face with each featured speaker. In their lectures, the speakers showcase their current and pathbreaking research to students, researchers, and faculty members.

Previous Speakers

2008 **David Baltimore,** Former Professor Emeritus and Judge Shirley Hufstedler Professor of Biology at California Institute of Technology. Baltimore along with Renato Dulbecco and Howard Temin won the 1975 Nobel Prize in Physiology or Medicine “for their discoveries concerning the interaction between tumour viruses and the genetic material of the cell.”

2009 **Elizabeth Blackburn**, Morris Herzstein Professor of Biology and Physiology at UCSF. She was awarded the 2009 Nobel Prize in Physiology or Medicine along with Carol W. Greider and Jack W. Szostak "for the discovery of how chromosomes are protected by telomeres and the enzyme telomerase.”

2012 **Shinya Yamanaka**, Director Emeritus & Professor, Centre for iPS Cell Research and Application, Kyoto University, Japan; Professor of Anatomy, School of Medicine, UCSF, and Senior Investigator, Gladstone Institute of Cardiovascular Disease, San Francisco. Yamanaka and John B. Gurdon were awarded the 2012 Nobel Prize in Physiology or Medicine “for the discovery that mature cells can be reprogrammed to become pluripotent.”

2014 **Huda Zoghbi,** Professor of Pediatrics, Molecular and Human Genetics, Neuroscience, and Neurology at Baylor College of Medicine. She is Director of the Jan and Dan Duncan Neurological Research Institute at Texas Children’s Hospital. She was awarded the 2017 Breakthrough Prize in Life Sciences “for discoveries of the genetic causes and biochemical mechanisms of spinocerebellar ataxia and Rett Syndrome.”

2015 **Eric Lander,** Professor of Biology; Professor of Systems Biology, Harvard Medical School; Core Institute Member and Founding Director Emeritus, Broad Institute of MIT and Harvard. He was awarded the inaugural 2013 Breakthrough Prize in Life Sciences “for the discovery of general principles for identifying human disease genes, and enabling their application to medicine through the creation and analysis of genetic, physical and sequence maps of the human genome.”

2016 **Karl Deisseroth,** D.H. Chen Professor, Professor of Bioengineering, Psychiatry and Behavioral Sciences at Stanford Health Care, and Investigator at Howard Hughes Medical Institute. He was awarded the 2016 Breakthrough Prize in Life Sciences “for the development and implementation of optogenetics— the programming of neurons to express light-activated ion channels and pumps, so that their electrical activity can be controlled by light.”

2017 **Mary-Claire King,** Senior Associate Faculty Member at New York Genome Centre (NYGC); American Cancer Society Professor in the Departments of Genome Sciences and Medicine, University of Washington. She was awarded the 2018 Shaw Prize in Life Science and Medicine “for her mapping the first breast cancer gene.”

2018 **David Anderson,** Seymour Benzer Professor of Biology and the Tianqiao and Chrissy Chen Institute for Neuroscience at Caltech. He is Director, Leadership Chair and Investigator of the Howard Hughes Medical Institute. He was awarded the 2018 Edward M. Scolnick Prize in Neuroscience “for his work on the biology of neural stem cells and neural circuits that control emotional behaviors.”

2019 **Helen Hobbs,** Investigator of the Howard Hughes Medical Institute; Professor of Internal Medicine and Molecular Genetics and the Dallas Heart Ball Chair in Cardiology Research at the University of Texas Southwestern Medical Center. She won the 2016 Breakthrough Prize in Life Sciences for “for the discovery of human genetic variants that alter the levels and distribution of cholesterol and other lipids, inspiring new approaches to the prevention of cardiovascular and liver disease.”

2020 **Venki Ramakrishnan**, Research Leader, MRC Laboratory of Molecular Biology, Cambridge, UK. He was recipient of the 2009 Nobel Prize in Chemistry along with Ada Yonath and Thomas Steitz “for studies of the structure and function of the ribosome.”

2023 **Ronald Vale,** Emeritus Professor of Cellular and Molecular Pharmacology at University of California, San Francisco; Janelia Senior Group leader at HHMI’s Janelia Research Campus, and co-head of the 4D Cellular Physiology research area at Janelia. He was awarded the 2017 Shaw Prize in Life Science and Medicine along with Ian R. Gibbons, “for their discovery of microtubule-associated motor proteins: engines that power cellular and intracellular movements essential to the growth, division, and survival of human cells.”

2024 January **David Julius**, Morris Herzstein Chair in Molecular Biology and Medicine; and Professor and Chair of the Department of Physiology at the University of California, San Francisco. Julius along with Ardem Patapoutian won the 2021 Nobel Prize in Physiology or Medicine “for their discoveries of receptors for temperature and touch.”

2024 February **John Jumper,** Director, Google DeepMind. Jumper and Demis Hassabis won the 2023 Breakthrough Prize in Life Sciences “for developing a deep learning AI method that rapidly and accurately predicts the three-dimensional structure of proteins from their amino acid sequence.” In 2024, they jointly won the Nobel Prize in Chemistry “for protein structure prediction”, which they shared with David Baker “for computational protein design.”

TNQ
FOUNDATION

TNQ Foundation is a not-for-profit foundation set up in India to support basic research in mathematics and the life sciences. The Foundation also supports the arts and animal welfare.

The Foundation's main outreach programme is the annual series of lectures in life sciences and mathematics, called the 'TNQ Distinguished Lectures in Life Sciences and TNQ Distinguished Lectures in Mathematics', respectively. It also manages the TNQ Inspiring Science Awards for the life sciences and TNQ Numbers & Shapes for mathematics.

tnqdistinguishedlectures.org