Indiana University Department of Biology

Fall 2011 Sonneborn Lecture

Photo courtesy of the Carnegie Institution for Science

Joseph G. Gall

Department of Embryology
Carnegie Institution for Science
Adjunct Professor, Johns Hopkins University

Transcription During The Lampbrush Chromosome Stage Of Oogenesis

November 9, 2011
4:00 p.m.
Myers Hall 130

After the lecture there will be a reception outside of Myers Hall 140.

Joseph G. Gall has been a staff scientist at the Carnegie Institution's Department of Embryology and an adjunct professor at Johns Hopkins University since 1983. The following year, he was given a lifetime appointment as an American Cancer Society Professor of Developmental Genetics. Much of his career has been spent studying how the structure of the cell, particularly the nucleus, is related to the synthesis and processing of ribonucleic acid, RNA, during gene activity.

Gall earned two Zoology degrees from Yale University: a B.S. in 1949 and a Ph.D. in 1952. His doctoral work was done with *Drosophila* geneticist and developmental biologist Donald F. Poulson. After graduation, Gall accepted a teaching position at the University of Minnesota where he became a Professor of Zoology. He returned to Yale in 1963, accepting a position as Professor of Molecular Biophysics and Biochemistry. His last position at Yale was as the Ross G. Harrison Chair in Biology. Gall has been a member of the American Society for Cell Biology, serving as the organization's president from 1967-1968.

His *in situ* hybridization technique, developed with graduate students Mary Lou Pardue and Susan Gerbi in 1969, is a powerful method that allows researchers to locate and map genes and specific sequences of DNA on a chromosome. This technique revolutionized molecular biology and is now used worldwide in gene studies.

In 2006, Gall was honored with the Albert Lasker Award for Special Achievement in Medical Science. Lasker Awards recognize those basic researchers and clinical scientists who further the understanding and treatment of disease. The awards are often referred to as "America's Nobels" because so many Lasker recipients have gone on to earn Nobel Prizes. The award recognized Gall as "a founder of modern cell biology who has made seminal contributions to the field of chromosome structure and function, who invented *in situ* hybridization, and who has been a long-standing champion of women in science."

Columbia University recognized Gall the following year with the Louisa Gross Horwitz Prize that he shared with his former postdoc, Elizabeth H. Blackburn, and her graduate student, Carol W. Greider, representing three generations of teacher-student scientists. The three were recognized for their work on telomeres and Blackburn and Greider went on to earn Noble Prizes for their research.

Gall's other honors include the 2004 Society for Developmental Biology Lifetime Achievement Award; the 1996 American Association for the Advancement of Science Mentor Award for Lifetime Achievement; the E. B. Wilson Medal from the American Society for Cell Biology (1993); and the Wilbur Cross Medal from Yale University (1988). He was elected to membership in the American Academy of Arts and Sciences in 1968, to the National Academy of Sciences in 1972, and to the American Philosophical Society in 1989.

History of the Sonneborn Lectures

To honor his contributions to science and his outstanding career, Tracy Sonneborn's friends and colleagues initiated the Sonneborn Lectureship. This is the 29th lecture in the series.

Aside from a few years at Johns Hopkins University, where he received the Ph.D. degree, Tracy Sonneborn spent his entire career at Indiana University. His devotion to the study of Paramecium established him as the world leader in biology and genetics of Protozoa; indeed it is no exaggeration to say that he founded the modern era of study in these areas. One of his major contributions was in demonstrating that preexisting structures in cells can repeatedly determine the patterns of new structures through many generations. Although recognized as an important exception to Mendelian inheritance and a critical element in prion diseases, the mechanism of structural inheritance in biology is not yet understood. "Whatever the final outcome of studies of these phenomena, he must take his place among the most brilliant and devoted experimentalists in the history of biology and a true giant, like no other, in the field of protozoan research," John Preer, http://newton.nap.edu/ html/biomems/tsonneborn.html. With precision, thoroughness, and infectious enthusiasm, Tracy Sonneborn also contributed unstintingly to teaching at Indiana University. In spite of the many attempts to entice him away, he remained loyal to IU, finding here the environment he thought was best.

Courtesy of the IU Archives

Tracy L. Sonneborn, 1905 – 1981

Note: For more information on Dr. Sonneborn, read John Preer's essay and his 2006 commentary in *Genetics* 172:1373–1377.

Support for this lecture has been provided by the Sonneborn Lecture Fund and the Department of Biology.

Previous Sonneborn Lectures

1981 Charles Yanofsky
1982 Donald D. Brown
1983 Philip Leder
1984 Gerald R. Fink
1985 David S. Hogness
1986 Mark Ptashne
1987 David Botstein
1988 Franklin Stahl
1989 Ira Herskowitz
1990 Thomas R. Cech
1991 Elizabeth H. Blackburn
1992 Melvin I. Simon
1993 Christiane Nüsslein–Volhard
1994 Christine Guthrie
1995 Gerald M. Rubin
1996 Lucy Shapiro
1997 Randy W. Schekman
1998 James Forney, Eric Meyer, Meng-Chao Yao, and John Preer
1999 John Kilmartin
2000 Elliot Meyerowitz
2001 David Prescott
2002 Philip Hanawalt
2003 Sharon Long
2005 Cynthia Kenyon
2006 J. Richard McIntosh
2007 David Baulcombe
2009 Terry L. Orr–Weaver
2010 Tian Xu
2011 C. David Allis