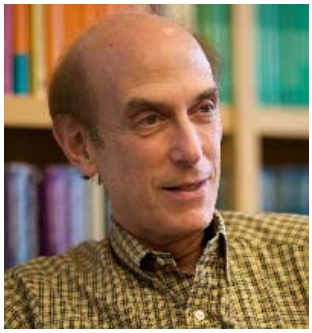
Leopoldina
Nationale Akademie
der Wissenschaften

Curriculum Vitae Professor Dr. Stephen J. Lippard



Name: **Stephen J. Lippard**
Born: **12 October 1940**

Main research interests: Inorganic chemistry, bioinorganic chemistry, and neurochemistry. Synthesis, reactivity, and structure determination of transition metal complexes; mechanism of action of platinum anticancer drugs; chemistry and catalysis at diiron centers; methane monooxygenase; zinc and NO signaling at the synapse.

Academic and Professional Career

2012	Sabbatical at the National Cancer Institute, Bethesda, USA, with Y. Pommier
2005 - 2006	Sabbatical at the Department of Chemistry, Stanford University, Stanford, USA, with K. O. Hodgson
1998	Sabbatical at the Department of Pharmacology, UCSD, San Diego, USA, with R. Tsien
1995 - 2005	Head, Department of Chemistry, Massachusetts Institute of Technology, USA
since 1989	Arthur Amos Noyes Professor of Chemistry, Massachusetts Institute of Technology, USA
1988	Sabbatical at the Anorganisch-Chemisches Institut der Technischen Universität München, Garching, with W. Herrmann
1983 - 1989	Professor of Chemistry, Massachusetts Institute of Technology, USA
1979	Sabbatical at the MRC Laboratory of Molecular Biology, Cambridge, UK, with A. Klug
1972 - 1982	Professor of Chemistry, Columbia University, USA
1972	Sabbatical at the University of Göteborg, Sweden, with B. G. Malmström
1969 - 1972	Associate Professor of Chemistry, Columbia University, USA

1966 - 1969 Assistant Professor of Chemistry

Functions in Scientific Societies and Committees

since 2012 Member, Scientific Advisory Board, University of Basel, Switzerland

since 2011 Head of SAB, Blend Therapeutics

since 2010 Member, SBCA Study Section, National Institutes of Health

since 2009 Member, Board of Directors, International Society of Zinc Biology

since 2009 Member, Board of Directors, Chemical Heritage Foundation

2004 Member, ACS NE Section Richards Medal Jury

1998 Chair, ACS NE Section Richards Medal Jury

1996 Chair, Gordon Research Conference on Metals in Biology

1992 Chairman, ACS Inorganic Division

1987 Chairman, Bioinorganic Subdivision, ACS Inorganic Division

1985 Chairman, Gordon Research Conference on Inorganic Chemistry

since 1988 Associate Editor, Journal of the American Chemical Society

1983 - 1988 Associate Editor, Inorganic Chemistry; initiated Bioinorganic Chemistry

1982 - 1985 Alternate Councilor, ACS Inorganic Division

1973 - 1977 National Institutes of Health Medicinal Chemistry Study Section B

Honours and Awarded Memberships

2015 Benjamin Franklin Medal in Chemistry

2012 Sacconi Medal

2011 Fellow of the American Chemical Society

2009 Linus Pauling Medal

2006 - 2004 National Medal of Science

2004 Member of the German National Academy of Sciences Leopoldina

2003 Royal Irish Academy

1996 Italian Chemical Society

1993 National Institute of Medicine

1989 National Academy of Sciences

1986 American Academy of Arts and Sciences

Major Scientific Interests

Stephen Lippard's laboratory discovered and named the first metallointercalators, platinum terpyridine complexes that insert between the DNA base pairs and unwind the duplex. This research was followed by extensive studies of the covalent interactions of cisplatin and related anticancer drugs with DNA. Included are the X-ray structural characterization of the major Pt-DNA adducts, 1,2-intrastrand cross-links, the discovery of high-mobility group and related proteins that bind specifically to these adducts, and elucidation of the details of the processing of Pt-DNA cross-links in living cells. A highlight of early work was the elucidation of the geometric and electronic structures of the platinum blues, first discovered over one hundred years ago.

Another major research area is the characterization of proteins that form the soluble methane monooxygenase (MMO) and related systems in bacteria. The Lippard group elucidated the structures of the hydroxylase enzymes from MMO, toluene monooxygenase, and phenol hydroxylase by X-ray crystallography in several oxidation states and with bound substrate analogs and product molecules. With the participation of several collaborators, many aspects of the molecular mechanism of dioxygen activation and alkane/arene hydroxylation were established. In parallel work, synthetic models of the carboxylate-bridged diiron center in the hydroxylase were prepared as both structural and functional mimics of the enzyme active sites.

These synthetic efforts also produced a beautiful series of polyiron complexes, including the molecular ferric wheel. In the area of metalloneurochemistry, his contributions include the synthesis of molecules that image zinc in neurons and provide the first real-time fluorescence images of both inducible and constitutive NO production in living cells.