

Where Chemistry Can Lead You!

Ludwig Bauer, PhD

In 1949 I graduated with a BSc (1st Class Honours) in Chemistry at the University of Sydney. I went on to complete my MSc in Chemistry also at the University of Sydney. From there I travelled overseas to the USA to study for my PhD at Northwestern University where I graduated in 1952.

I have held the following positions:-

- Demonstrator, University of Sydney, 1948
- National Health and Medical Council Research Fellow, University of Sydney, 1949
- Research Assistant, Northwestern University, 1950-1952
- Research Associate, Harvard and Columbia Universities, 1952-1953
- Research Associate, University of Sydney, 1953-1954
- Research Chemist, Elkin Chemical Co., 1955
- Assistant Professor of Pharmaceutical Chemistry, College of Pharmacy, University of Illinois at Chicago, 1955-1961
- Associate Professor of Medicinal Chemistry, College of Pharmacy, University of Illinois at Chicago, 1961-1965
- Professor of Medicinal Chemistry, College of Pharmacy, University of Illinois at Chicago, 1965-1997
- Director of Graduate Studies in Medicinal Chemistry, 1987 to 1991
- Professor Emeritus, 1997

My teaching experience at the University of Illinois at Chicago include:-

Taught organic-medicinal chemistry courses (with lab) to professional (B. S.) pharmacy students (1955-1984); an introductory organic-medicinal chemistry course to the Pharm. D. (pharmacy) students (1984 to 1997); advanced and graduate courses in organic reactions, mechanisms, syntheses, natural product chemistry, and heterocyclic chemistry to upper classmen (pharmacy) and graduate students in medicinal chemistry and other disciplines (1955-1997).

My research interests have centred around the synthesis and development of new medicinal agents. Phases of this research included the investigation of new organic reactions and new fundamental chemistry of heteroaromatic systems. The chemistry of many different systems were studied, notably those which involved the rupture of a nitrogen-oxygen bond. Systems in this category included hydroxamic acids and *N*-hydroxyimides. During the Lossen rearrangement of *O*-acyl hydroxamic acids, notably 3-sulfonyloxy-4,5-dihydrouracils and analogs, the *N*-*O* bond is broken with subsequent rearrangement of the system. In studies of the deoxydative substitution of pyridine *N*-oxides with mercaptans, the overall process also involves the rupture of the *N*-*O* bond. Another area of study was that of the Diels-Alder additions of benzyne to 2-pyridones which led to a series of 1,4-Ethano-1,2,3,4-tetrahydroisoquinolines which were tested as rigid conformational analogs of adrenergic agents. The chemistry and metabolism of anti-inflammatory 3-[(2-arylthio)ethyl]sydnones (in rats) were investigated. Lithiation-substitution reactions of imidazoles was studied to produce a number *N*- and *C*-imidazolyl ketones.

A series of condensed *N*-hydroxyuracils were synthesized and tested as potential anticancer agents by the National Cancer Institute. In another project, 2-mercaptoacetamidines were prepared and evaluated

as potential anti-radiation drugs by the U.S. Army Medical Research and Development Command. Aryl 4-guanidinobenzoates were evaluated as acrosin inhibitors and potential vaginal contraceptives. A series of imidazolyl 1,3-dioxolanes and 2,3-oxathiolanes, analogs of ketoconazole were prepared and evaluated as potential male oral contraceptives (project sponsored by the National Institute of Child Health and Human Development, NIH). 7-Arylidenealtraxones, as well as derivatives of naltrexone and oxymorphone (in which a heterocyclic ring is fused to the 6,7-positions) are being investigated as potential agonists and antagonists at m, d, and k opiate receptors (sponsored by National Institute of Drug Abuse).

Membership in Professional Societies:-

- American Chemical Society: 1950-present
- Chicago Section, American Chemical Society
- Division of Organic Chemistry, American Chemical Society
- Division of Medicinal Chemistry, American Chemical Society
- The Chemical Society, London: 1949-1978
- International Society of Heterocyclic Chemistry: 1968-present
- Society of Sigma Xi: 1952-present

Major Professional Activities and Public Service:-

- Editorial Board, Journal of Heterocyclic Chemistry: 1963-present
- Editorial Board, Index Chemicus: 1967-1968
- Faculty Advisor, Graduate Student Council, UIMC: 1970-1971
- Program Chairman, Chicago Section, American Chemical Society: 1967-1968
- Director of the Chicago Section, American Chemical Society: 1968-1972
- Member of the Organic Chemistry Examination Committee, Subcommittee of the Education Committee, American Chemical Society: 1960-1986; Chairman of this Committee, 1978-1987 to develop the 1982 and 1986 ACS Organic Chemistry Examinations
- President, Sigma Xi, University of Illinois Medical Center Chapter: 1980-1981
- Treasurer, International Society of Heterocyclic Chemistry, January 1980-December 1991

Honors:-

- Freshman Teacher of the Year (voted by the Freshman pharmacy students) 1966, 1968, 1969, 1970, 1972, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1991.
- Award for Excellence in Teaching University of Illinois at Chicago, 1989, see page 5 of PDF document, in http://www.uic.edu/depts/oaa/Docs/excellence_in_teaching.PDF.
- Professor Ludwig Bauer Fellowship in Medicinal Chemistry
In addition to University-wide competitive fellowships, the Medicinal Chemistry program offers annually an endowed, program-specific competitive fellowship, the Professor Ludwig Bauer Fellowship in Medicinal Chemistry. See, <http://www.uic.edu/depts/grad/programs/medchem.shtml>

I am now retired after 42 years at the University of Illinois at Chicago.