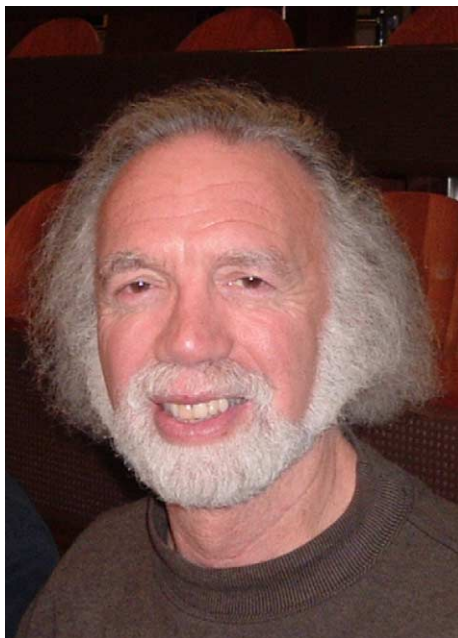


Editorial

Foreword to the special JOMC issue on bioorganometallic chemistry



Richard H. Fish

Bioorganometallic chemistry is a rapidly growing and diversifying field. The science citation index exhibits an increasing number of respective keyword records from year to year. Obviously, the implementation of organometallic compounds in “aqueous science” represents a strong incentive for current and future research.

What does “bioorganometallic” precisely mean is an often asked question, difficult to be answered and entailing quite some debate in the presence and the recent past. It has been defined in the foreword of the special JOMC issue for ISBOMC’02 as “the study of organometallic complexes with bioligands ... to profit from the pertinent synergy between organometallic chemistry and biology”. Nature followed (or coined) that definition million years ago with the biosynthesis of coenzyme B12 the first natural compound with an M–C bond. Nowadays, more and more examples are being discov-

ered in biology. Enzymes comprising CO ligands, in particular, at their active site are examples and one may expect more functions of organometallic complexes to be discovered but still concealed in nature.

Is a definition required at all? We believe “no” since definitions tend to limit the horizon and to diminish the innovation of researchers. The diverse and excellent contributions at this 2nd International Symposium on Bioorganometallic Chemistry in Zürich, 14–17 July 2004 expanded nature’s definition without losing its authenticity.

The decision to publish a second special issue proves that the editors recognize relevant developments in life science. The selection of papers published in this special issue of JOMC mirrors the realm of bioorganometallic chemistry. The contributions encompass receptor binding organometallic complexes as pharmaceuticals (formerly restricted to organic compounds), interaction

with biomolecules by coordination, active centers in enzymes to mimic their catalytic activity for socially relevant processes, analytical probes for structures and functions and last but not least fundamental coordination chemistry of organometallic complexes with bioligands. The contributions have at least one M–C bond and water as a solvent in common.

About 150 attendees from 28 countries participated in this conference, a clear growth compared to the important inaugural meeting held in Paris 2002 and organized by G. Jaouen and R.H. Fish. New research directions for organometallic complexes in life science and in biology in particular will be introduced. The diversity of talks is the great potential of this discipline. Hopefully, younger participants will be inspired about this, the ultimate aim of this symposium.

The second conference will be followed by a third one. Professor Stefano Maiorana, a plenary lecturer during ISBOMC'04, kindly agreed to organize the next meeting in Milano, Italy, in July 2006 a country from which many fundamental studies on the topic appeared. We are convinced that the interest will persist and the enthusiasm in bioorganometallic chemistry will grow with time.

It is our pleasure to dedicate the special issue of the Journal of Organometallic Chemistry to Richard H. Fish on the occasion of his 65th birthday, September 7, 1939. Dick (as he is known to all of his friends) was born in Providence, Rhode Island. He received his early schooling in Cranston, RI, and then attended the University of Rhode Island, majoring in Chemistry, and obtaining his BS degree in 1961. He then joined the research group of Henry Kuivila at the University of New Hampshire carrying out a PhD program on mechanistic organotin and organogermanium hydride chemistry, focusing on hydrostannation and hydrogermanation of allenes and alkenes/cycloalkenes. He was awarded the PhD degree in June 1965.

He worked first in industry at US Borax Research Corporation in Anaheim, CA starting programs on organoboron hydride chemistry, but then decided that academic research was more to his liking, and did a postdoctoral year at UC Irvine in 1968–1969 on photochemistry of sulfur yields with Marjorie Caserio. He moved to Berkeley in 1969 and worked at the US Department of Agriculture Laboratory initiating programs on organomercury chemistry, especially with β -diketones. In 1973, he moved to the UC Berkeley campus, and started a program on bioorganometallic chem-

istry focused on synthesis and identification of metabolites of organotin compounds in reactions with cytochrome P450 monooxygenase enzymes in collaboration with John Casida, director of a pesticide chemistry and toxicology laboratory.

In 1979, he moved from the Berkeley campus to the Lawrence Berkeley National Laboratory (LBNL), and has developed programs in organometallic geochemistry focused on arsenic; organometallic model studies on the hydrodenitrogenation process; polymer pendant ligand and metal ion templated polymer chemistry for selective metal ion removal from water; biomimetic methane monooxygenase enzyme models for hydrocarbon oxidation chemistry, fluorous biphasic catalysis; bioorganometallic chemistry focused on organorhodium–DNA/RNA complexes, including structure, molecular recognition, and biomimetic models for NAD^+ / NADH co-factor regeneration with organorhodium hydride chemistry for chiral synthesis.

He was a visiting professor in 1978 at the University of Utrecht, The Netherlands, and in 1984 at the University of Bordeaux, Talence, France. More recently, from 2000–present, he has spent time as an invited visiting professor at the Institute of Inorganic Chemistry, University of Zaragoza, Spain; Department of Organic Chemistry, Weizmann Institute of Science, Rehovot, Israel; Ecole Nationale Supérieure de Chimie de Paris, France; Institute of Inorganic Chemistry, University of Zurich, Switzerland; Institute of Chemical Science and Engineering, Swiss Federal Institute of Technology, Lausanne, Switzerland, lecturing, teaching special topic courses, and conducting collaborative research in bioorganometallic chemistry and fluorous biphasic catalysis.

In July 2002, he and Gérard Jaouen organized the first International Symposium on Bioorganometallic Chemistry (ISBOMC'02) in Paris. At LBNL, he has had PhD, MS, and undergraduate students, postdoctoral fellows, and visiting high school teachers participate in his research programs. In addition to chemistry, he is an avid American handball player, bike rider, and is an enthusiast of jazz music and French/California/Italian wines/food. He is the life of every party, a good friend and respected colleague. We wish him the best in all of his future endeavors.

Richard H. Fish
Roger Alberto