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## **EDUCATION AND TRAINING**

London University, Postdoctorate, 1957-1959, Electron Microscopy & X-ray diffraction  
Harvard University, Ph.D., 1957, Physical Chemistry  
University of Chicago, M.S., 1952, Physical Chemistry  
University of Chicago, A.B., 1949, Philosophy

## **HONORS**

1958-1959     NIH Postdoctoral Fellowship, Kings College, University of London  
1957-1958     NSF Postdoctoral Fellowship, Kings College, University of London  
1984           Selman A. Waksman Award for Outstanding Contributions to Microbiology

## **EMPLOYMENT**

Professor Zubay did his undergraduate work and some graduate work at the University of Chicago, where he worked under Henry Taube and Willard Libby. He received his Ph.D. in physical chemistry at Harvard under Paul Doty. Postdoctoral work was done in England where he worked under M.H.F. Wilkins, P.B. Medawar and Hugh Huxley. Further postdoctoral work was done at Rockefeller University in the laboratory of Fritz Lipman.

2005-           Professor Emeritus  
1973-2005     Professor of Biological Sciences, Columbia University, New York City  
1964-1973     Associate Professor, Department of Biological Sciences, Columbia University  
1961-1963     Assistant Biochemist, Biological Department, Brookhaven National Laboratory  
1959-1961     Research Associate, Rockefeller Institute, NY

## **EDITORIAL BOARDS**

- Editorial Board of Origins of Life and Evolution of the Biosphere and Chemtracts, Biochemistry and Molecular Biology
- Special edition editor for Chemtracts

**CURRENT INTEREST:** Particle Physics

## MAJOR AREA OF ACADEMIC INTEREST

Epic discoveries made in the early 1980's that nucleic acids could function like enzymes provided the logical basis for an RNA-only world. In such a world, RNA is pictured as a molecule that can store useful information, undergo replication, change by the process of Darwinian selection and carry within itself a range of catalytic activities. This description is not too different from the known functions of RNA so it is not too difficult to imagine.. But what of the developments that led to this RNA-only world? Where did the nucleotides that were used as building blocks for the first RNAs come from? Considerable research effort was directed to this problem in the 60s and 70s which subsequently subsided. In view of the RNA-only world hypothesis a resurgence of effort to find more effective pathways to the first nucleotides takes on added importance. That is the focus of our research at the present time.

Thus far Zubay's laboratory has made several contributions to our understanding of possible prebiotic pathways for the synthesis of the first nucleotides which I consider to be quite significant. We have found efficient conditions for the conversion of aminoimidazole carbonitrile (AICN) and aminoimidazole carboxamide (AICA) into adenine and hypoxanthine respectively. We have developed new and more effective methods for phosphorylation of nucleosides and nucleotides. We have developed a lead-catalyzed system for the synthesis of the aldopentoses with yields of about 30%. Presently we seek to improve the system for ribose synthesis and to resolve some of the other remaining problems in the prebiotic synthesis of activated adenosine and inosine nucleotides.

## PUBLICATIONS

167. Runners Up, Medha goyal, K. Kehoe and G. Zubay, submitted.
166. A Prebiotic Pathway for the First Nucleotides M. Nugent, E. Khandros, J. fang, and G. Zubay, Chemtracts. In Press
165. Microbiology and Bioterrorism. A book about 400 pages, Columbia University Press, in press. This is a joint effort with students and myself. Geoffrey Zubay, Coordinating Author, Contributing Authors: Rian Balfour, Barbara Chubak, William Edstrom, Maria E. Garriodo, James Hudspeth, Kathleen Kehoe, Anuji Mehta, Kira Morser, Rohit Puskoor, Payla Shah, Salwa Touma and James Ward.
164. Stereoselective Interaction of D. and L-Ribose Mediated by Divalent Lead, M. Nugent, P. Permalsamy and G. Zubay Chemtracts, Biochemistry and Molecular Biology 17, 486-492, 2004
163. Zubay, G. A Ribozyme Composed of Only Two Different Nucleotides Chemtracts 16;, 1-8, 2003. A Commentary
162. Zubay, G. Efficacy and Safety of a Specific Inhibitor of the BCR-ABL Tyrosine Kinase in Chronic Myeloid Leukemia. Chemtracts 14. 733-738. 2001. A Commentary

161. Zubay, G. The Glyoxylate Cycle, a Possible Evolutionary Precursor of the TCA Cycle  
Chemtracts 16, 783-788, 2003.
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Chemtracts 14 : 291 - 296, 2001.
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pp 42 - 51 in Fundamentals of Life, 2001. Editors scientifiques et medicales Elsevier  
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Ribose, Chemtracts-biochem and Mol. Biol. 14 : 117 - 124, 2001.
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Encyclopedia of Genetics, 2000.
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87 - 102.
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Biol. 12, 432.
150. Reimann, R., and Zubay, G. (1999). Nucleoside Phosphorylation: A Feasible Step in  
to Prebiotic Pathway to RNA. Origins of Life and Evolution of the Biosphere 29: 222-  
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148. Zubay, G. (1998) Studies on the Lead-Catalyzed Synthesis of Aldopentoses. Origins  
of Life and Evol. Of the Biosphere, 28: 13-26.
147. Zubay, G. (1997) Did Carbohydrates Provide Carbon Skeletons for the First Amino

- Acids to be Synthesized on Planet Earth? *Chemtracts, Biochem and Mol. Biol.*, 10, 407.
146. Zubay, G. (1996) Arguments in Favor of an AII-Purine RNA First, *Chemtracts, Biochem and Mol. Biol* 6: 251-260.
  145. Zubay, G. (1996) Gene Regulation Studies in the Early Days, *Chemtracts, Biochem and Mol. Biol* 6: 85-99.
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