



K. C. Nicolaou

Rice University

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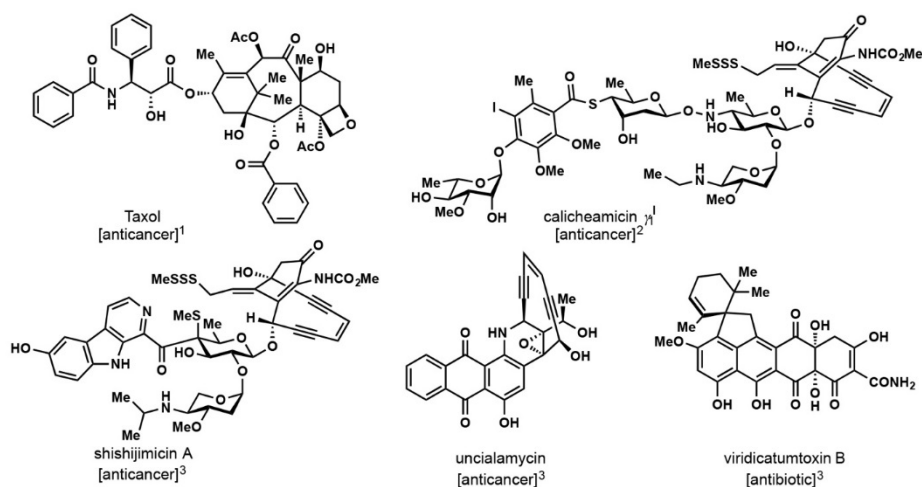
K. C. Nicolaou is currently the Harry C. Olga K. Wiess Professor of Chemistry at Rice University. He previously served concurrently as the founding chairman of the Chemistry Department at the Scripps Research Institute and a distinguished Professor of Chemistry at the University of California, San Diego (1989-2013). His research activities focus on the discovery and development of new synthetic strategies and technologies, and their applications to the total synthesis of natural and designed molecules of biological and medical importance. He is a co-author of the *Classics in Total Synthesis* series (I, II, III) and *Molecules that Changed the World*.

Among his many awards and honors are the Award for Creative Work in Synthetic Organic Chemistry, American Chemical Society (1993), the Dr. Paul Janssen Prize for Creativity in Organic Synthesis, Janssen Research Foundation (1994), the William H. Nichols Medal, New York Section-American Chemical Society (1996), the Linus Pauling Medal, Oregon, Portland, Puget Sound Sections-American Chemical Society (1996), the Ernst Schering Prize, Ernst Schering Research Foundation (Germany, 2001), the Tetrahedron Prize for Creativity in Organic Chemistry (2002), the ACS Nobel Laureate Signature Award for Graduate Education in Chemistry (2003), the A.C. Cope Award, American Chemical Society (2005), the Chandler Medal, Columbia University (2008), the Benjamin Franklin Medal in Chemistry (2011), and the Wolf Prize (Israel, 2016).

He is a Fellow of the American Academy of Arts and Sciences (1993), Member of the National Academy of Sciences (USA, 1996), Foreign Member of the Academy of Athens (Greece, 2001), Honorary Fellow of the Indian Academy of Sciences (2007), Member of the German Academy of Sciences Leopoldina (2009), Member of the American Philosophical Society (2011), and Foreign Member of the Royal Society of London (2013). He holds 10 honorary degrees from universities around the world.

Abstract: The Art and Science of Organic Synthesis and Its Impact on Biology and Medicine

In this lecture, a brief historical overview of organic synthesis and its impact on biology and medicine will be followed by highlights of advances in total synthesis from the speaker's laboratories. Specifically, the total synthesis of natural and designed molecules of biological and medical importance will be presented, including the anticancer agents Taxol[®], calicheamicin γ_1^1 , uncialamycin, shishijimicin A, and antibiotic viridicatumtoxin B. The lecture will also touch upon the impact of total synthesis on the advent of antibody drug conjugates (ADCs) for targeted cancer therapies.



Reviews:

1. K. C. Nicolaou, R. K. Guy, The Conquest of Taxol. *Angew. Chem. Int. Ed. Engl.* **1995**, *34*, 2079–2090.
2. K. C. Nicolaou, The Battle of Calicheamicin γ_1^1 . *Angew. Chem. Int. Ed. Engl.* **1993**, *32*, 1377–1385.
3. K. C. Nicolaou, S. Rigol, The Evolution and Impact of Total Synthesis on Chemistry, Biology and Medicine. *Isr. J. Chem.* **2017**, doi:10.1002/ijch.201600087