

Plenary Lecture
57th Annual Convention of Chemists (ACC) - Indian Chemical Society (ICS)
Recent Trends in Chemical Sciences (RTCS 2020)

Break-it-to-Make-it Strategies for Chemical Synthesis

Richmond Sarpong*

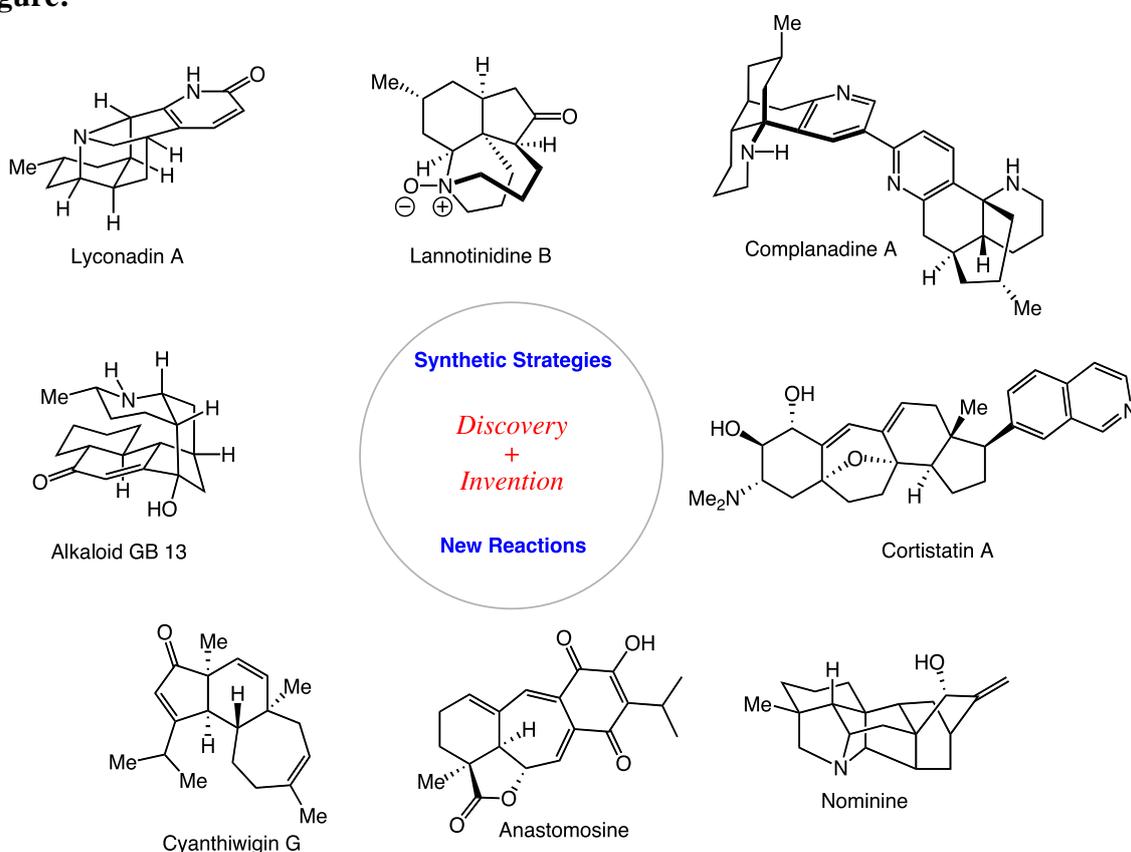
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Abstract: Natural products continue to inspire and serve as the basis of new medicines. They also provide intricate problems that expose limitations in the strategies and methods employed in chemical synthesis. Several strategies and methods that have been developed in our laboratory and applied to the syntheses of architecturally complex natural products will be discussed. In addition, new ways to employ C–C bond cleavage in synthesis will be presented (i.e., break-it-to-make-it strategies).

Figure:



References and Notes:

1. Marth, C.J.; Gallego, G.M.; Lee, J.C.; Lebold, T.P.; Kulyk, S.; Kou, K.G.M.; Qin, J.; Lilien, R.; Sarpong, R.; *Nature* **2015**, *528*, 493.
2. Mercado-Marin, E.V.; Garcia-Reynaga, P.; Romminger, S.; Pimenta, E.F.; Romney, D.K.; Lodewyk, M.W.; Williams, D.E.; Andersen, R.J.; Miller, S.J.; Tantillo, D.J.; Berlinck, R.G.S.; Sarpong, R.; *Nature* **2014**, *509*, 318.
3. Roque, J. B.; Kuroda, Y.; Göttemann, L. T.; Sarpong, R. *Science*, **2018**, *361*, 171.
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Bio-Sketch of Speaker

Richmond Sarpong

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Richmond Sarpong is a Professor of Chemistry at the University of California Berkeley where he and his group specializes in synthetic organic chemistry. Richmond became interested in chemistry after seeing, firsthand, the effectiveness of the drug ivermectin in combating river blindness during his childhood in Ghana, West Africa. Richmond described his influences and inspirations in a TEDxBerkeley talk in 2015 ([Face of Disease in Sub-Saharan Africa](#)). At Berkeley, Richmond's laboratory focuses on the synthesis of bioactive complex organic molecules, with a particular focus on secondary metabolites that come from marine or terrestrial flora and fauna. These natural products continue to serve as the inspiration for new medicines. It is Richmond's hope that through the work in his laboratory, he and his coworkers will uncover methods and strategies for synthesis that may contribute to more efficient ways to prepare bioactive compounds that may inspire new medicines.

Of all his professional accomplishments, Richmond is most proud of the students in his research group and those with whom he has worked in the past that have gone on to their own independent careers. He enjoys teaching and was the recipient of the 2009 UC Berkeley Department of Chemistry teaching award and the 2016 Noyce Prize for Excellence in Undergraduate Teaching in the Physical Sciences at Berkeley. Richmond's research group has published over 110 papers and he has received numerous awards in recognition of his research

Educational Background

Undergraduate Education:

Macalester College, St. Paul, MN.

Bachelor of Arts Degree (Chemistry Major), May 1995 (Advisor: **Prof. Rebecca C. Hoye**)

Graduate Education:

Princeton University, Princeton, NJ

Master of Science Degree (Organic Chemistry), May 1997

Ph. D. in Organic Chemistry, May 2001 (Advisor: **Prof. Martin F. Semmelhack**)

Postdoctoral Institution:

California Institute of Technology, Pasadena, CA
CAUNCF•Pfizer Postdoctoral Fellow in Organic Synthesis, 2001–2004 (Advisor: **Prof. Brian M. Stoltz**)

Professional Positions Held

University of California, Berkeley

Executive Associate Dean, College of Chemistry (July 2018–Present)

Full Professor, Department of Chemistry (July 2014–Present)

Associate Professor, Department of Chemistry (2010–June 2014)

Assistant Professor, Department of Chemistry (2004–2010)

RTCS 2020 in the Dept. of Chemical Sciences, IISER Kolkata during December 27-29, 2020

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Honors and Awards

Elected Member of the American Academy of Arts and Sciences (2020)
Elected Fellow of the American Chemical Society (2019)
ISHC Alan R. Katritzky Award (2019)
Mukaiyama Award of the Synthetic Society of Organic Chemistry Japan (2019)
John Simon Guggenheim Fellow (2017)
Noyce Prize for Excellence in Undergraduate Teaching (2016)
Schulich Visiting Professor (Technion, Israel) (2015–2016)
Royal Society of Chemistry Synthetic Organic Chemistry Award (2015)
ACS Arthur C. Cope Scholar (2015)
Fuson Lecturer, University of Illinois Urbana Champaign (2014)
Japan Society for the Promotion of Science Fellowship (2013)
Paul Dowd Lecturer, University of Pittsburgh (2013)
Honorary Lifetime Membership of the Israel Chemical Society (2012)
Society of Synthetic Organic Chemistry Japan Lectureship Award (2011)
Ginsberg Lecturer (Technion, Israel) (2011)
Roche Excellence in Organic Chemistry Award (2010)
UC Berkeley Department of Chemistry Teaching Award (2009)
Camille Dreyfus Teacher-Scholar Award (2009)
Alfred P. Sloan Foundation Fellow (2009)
American Cancer Society Research Scholar (2009-2012)
Eli Lilly Grantee Award (2009-2010)
National Academies of Science Kavli Fellow (2008)
University of California Hellman Faculty Award (2008-2009)
AstraZeneca Excellence in Chemistry Award (2008)
Dupont Young Professor Award (2008-2010)
Johnson and Johnson Focused Giving Award (2008-2010)
GlaxoSmithKline Scholar Award (2008)
Amgen Young Investigator Award (2007)
National Science Foundation CAREER Award (2007-2011)
Abbott Young Investigator Award (2007-2008)
Eli Lilly Young Investigator Grantee (2004)

Professional Service

Editorial Board of Organic Syntheses (2014–2021)
Editorial Advisory Board for Accounts of Chemical Research (2015–2021)
Editorial Advisory Board for Synthesis and SynLett (2014–2018)
Editorial Advisory Board for the Journal of the American Chemical Society (2013–2018)
Editorial Advisory Board for Chemical Science (2011–2021)
Editorial Advisory Board for Organic and Biomolecular Chemistry (2011–2017)
ACS Division of Organic Chemistry Executive Committee (2013–2016)
NIH SBCA Study Section, Permanent Member (2012–2017)
Chair, Gordon Research Conference on Heterocyclic Compounds (2011)
University of California Cancer Research Coordinating Committee (2010–2013)
NIH SBCB Study Section, Ad Hoc Member (2008)
NSF-CAREER Study Section Panel Member (2008)
NIH-CREST Study Section (2005)