Bringing Chemistry to Life podcast series

ThermoFisher SCIENTIFIC

Season 3: **The 2021 C&EN's Talented 12**
Episode 2: **Making impossible molecules**

Bringing Chemistry to Life

Episode abstract

For decades chemists have challenged themselves to reproduce in the lab incredibly complex molecules that can usually only be extracted from plants or other highly evolved (micro)organisms. These are often painfully complex efforts from researchers to design and execute multi-step chemical synthesis, where consideration must be given to intramolecular interactions from to multiple functional groups as well as many stability, configuration, and conformational issues. Yet this is how modern synthetic chemistry has evolved its toolbox of useful reactions and how skilled chemists exhibit creativity in addressing some of the most complex scientific problems.

Hans Renata left native Indonesia as a young child to study in Singapore and later emigrated to the US for his academic career, partly spent in the lab of a Nobel Prize recipient. Perseverance and the ability to adapt skills learned at an early age played that played a key role his becoming the chemist he is today: a chemist that make molecules everybody else struggles to imagine. Hans is known for his chemical creativity and his synthetic approaches look like nothing else out there. In this episode we discuss how combining traditional organic chemistry with the use of enzymes is at the foundation of his research and how this could change organic synthesis as we know it.

About our guest

Hans Renata, PhD

Associate Professor, Department of Chemistry, Scripps Research - Florida Campus

Hans' group site: https://renatalab.com/
C&EN Talented 12 profile of Hans: https://cen.acs.org/synthesis/biocatalysis/Hans-Renata/99/i30

Recent Publications from Hans:

- Modular Chemoenzymatic Synthesis of GE81112 B1 and Related Analogues Enables Elucidation of Its Key Pharmacophores
- Concise Chemoenzymatic Total Synthesis and Identification of Cellular Targets of Cepafungin
- Divergent Synthesis of Complex Diterpenes Through a Hybrid Oxidative Approach
- Merging Chemoenzymatic and Radical-Based Retrosynthetic Logic For Rapid and Modular Synthesis of Oxidised Meroterpenoids
- Asymmetric Chemoenzymatic Synthesis of (-)-Podophyllotoxin and Related Aryltetralin Lignans

Hans' Content Recommendations:

- O'Mast (A documentary on the tradition and craft of Neapolitan tailoring)
- Andrey Tarkovsky – Sculpting in Time (A book by Andrey Tarkovsky about his filmmaking)
- Weaving Influences (A talk by Don Anderson from Agalloch about the progression of heavy metal)
- Eames: The Architect and the Painter (A documentary about two influential industrial designers)
- A Visual Journey Through the Subconscious (A video of Hans' favorite art and music)

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