

Terrence Collins

Professor at Carnegie Mellon University

Pittsburgh, PA, US

Terry Collins invented "TAML® Activators", the first small molecule mimics of any of the great families of oxidizing enzymes.

Biography

A champion of sustainability science, Terry Collins is the Teresa Heinz Professor of Green Chemistry and the Director of the Institute for Green Science at Carnegie Mellon University. Collins invented "TAML® Activators", the first, full-functional, small molecule mimics of any of the great families of oxidizing enzymes. In the process, one of the great challenges of reaction chemistry has been solved?easy deployment of the mimicked efficient catalytic cycles of oxidative metabolism. Today, NewTAMLS are the best performers. Collins learned of the insidious health damage caused by anthropogenic chemical pollutants in his native New Zealand. He launched his academic career by creating an iterative catalyst design protocol to explore whether biomimetic processes for disinfecting water could be developed to replace chlorine and avoid chlorinated disinfection products. TAML and NewTAML activators are the principal fruits, greatly outperforming the enzymes while enabling applications exhibiting or promising high technical, cost, health, environmental and fairness performances. Collins framed the argument that high health, environmental and fairness performances define sustainable chemicals and need to be integrated with comparable weight to the technical and cost performances that typically define commercial viability. For over two decades, Terry Collins has been perfecting what is the first university course in Green Chemistry?today the class is entitled ?Chemistry and Sustainability?. He has delivered over 600 public lectures and is an author on over 200 publications, mostly in peer-reviewed journals. Collins earned his undergraduate and doctoral degrees from the University of Auckland. He joined the Carnegie Mellon faculty in 1987. Among his honors are the 2018 Carnegie Science Center Award for the Environment, the 2010 Heinz Award for the Environment, the inaugural Charles E. Kaufman Award of the Pittsburgh Foundation, the 2007 Award of The New York Metropolitan Catalysis Society, the USEPA?s 1999 Presidential Green Chemistry Challenge Award, the Pittsburgh Award from the American Chemical Society, Japan?s Society of Pure and Applied Coordination Chemistry Award, and many others. Collins is a Distinguished Alumni Award recipient from the University of Auckland where he is an Honorary Professor. He is a Fellow of the Royal Society of New Zealand (Hon), the ACS, and the Alfred P. Sloan Foundation, and he received a Dreyfus Teacher-Scholar Award.

Industry Expertise

Research, Chemicals, Education/Learning, Investment Banking

Areas of Expertise

Chemistry and Sustainability, Oxidation Catalysis, Sustainability, Green Chemistry, Inorganic Chemistry

Affiliations

Sudoc : Creator-founder & Board Member

Education

The University of Auckland
B.Sc. Chemistry

The University of Auckland
Ph.D. Chemistry

The University of Auckland
M.Sc. Chemistry

Accomplishments

The Environment Award
2018 Carnegie Science Center

Fellow
2013 American Chemical Society

Honorary Fellow of the Royal Society of New Zealand
2008

Charles E. Kaufman Award of the Pittsburgh Foundation
2008

Heinz Award for the Environment
2010

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