

Organic, Bioorganic, and Medicinal Chemistry

Research Topics

Organofluorine Chemistry

- Synthetic organofluorine chemistry
- Organofluorine compounds for biochemical and medicinal applications
- Organofluorine compounds for fuel cell membranes

Lithium Ion Batteries and Materials Chemistry

- Nonaqueous electrolytes for lithium ion and lithium-air batteries
- Technology for improved Surface films on cathodes (SEI)
- Anion Receptors for improved conductivity and cell performance

Medicinal Chemistry

- Design and synthesis of CDK5 inhibitors as therapeutics for Alzheimer's disease (AD) and cancer
- AGE-inhibitors and AGE-breakers: mechanistic and pharmaceutical studies

Facilities

Multinuclear NMR; GC/MS; ESI/MS; HPLC; FT-IR, Uv-Vis, Fluorescence Spectroscopy; photochemical and Microwave Reactors; Elemental Analyzer

PoC: V. Prakash Reddy, Ph.D.

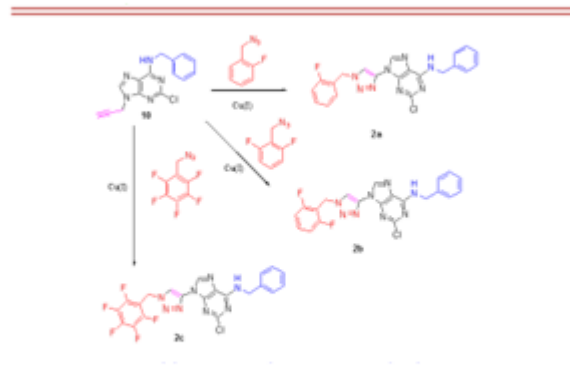
Professor of Chemistry
Department of Chemistry
Missouri University of Science and Technology
Email: preddy@mst.edu; Tel: (573)341-4768



Funding

NASA STTR; ACS-Petroleum Research Fund; Schwab Foundation; UM Interdisciplinary Research; MS&T Technology Acceleration

Design and synthesis of AD-Therapeutics



Organofluorine Compounds in Biology and Medicine,

Reddy, V. Prakash, Elsevier; Amsterdam, 2015

Keywords

Synthetic organic chemistry; organofluorine chemistry; drug discovery; Alzheimer's disease; oxidative stress; kinase inhibitors; AGE-inhibitors/breakers; NMR; catalysis; nonaqueous electrolytes; lithium ion batteries; superacids; carbocations and reactive intermediates; ionic liquids.

Recognitions/Significant achievements

- NASA Faculty Fellow, Jet Propulsion Laboratory
- Golden Key National Honor Society, Honorary Member, CWRU
- Purine-based Triazoles, Reddy, V. Prakash; Nair, Nanditha, G.; Smith, Mark, A.; Kudo, Wataru, 2015, US 8969556 B2; U.S. Patent number: US8,969,556 B2; WO 2012051296; A2 20120419; US 2010-61392237.
- Books: Reddy, V. Prakash. *Organofluorine Chemistry in Biology and Medicine*, Elsevier; Amsterdam, 2015.