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## **Sustainable medicinal chemistry: New therapeutic scaffolds through C-X/H bond activation via synergistic catalysis by metal nanoparticles**

**Asit K Chakraborti**

National Institute of  
Pharmaceutical Education and  
Research, India

In the pharmaceutical industry, organic chemistry continues to occupy the center stage of drug discovery and the small molecule therapeutic drug discovery and development is driven by expertise in synthetic organic chemistry. Therefore, as chemistry underpins everything the medicinal chemists do it

is important/obligatory that medicinal chemists continue to develop the core expertise of synthetic organic chemistry to enrich the medicinal chemists toolbox. However, the current medicinal chemistry practice lacks incorporation of recent innovative chemistry breakthroughs in the list of the most frequently used synthetic reactions in drug discovery. This leads to overpopulation of certain types of molecular architecture and narrows the available chemical space resulting in biased screening options. At the same time, sustainable development has become the frontiers in any branches of science and particularly so in chemical research. In the areas of

pharmaceutical research, it is the key success indicator and constitutes an unavoidable component to address the critical issues on environmental protection. Thus, it becomes necessary to make more expedient use of modern synthetic methodologies, in compliance with the principles of green chemistry, to expand the current arsenal of medicinal chemists to stretch into the unexplored chemical space. The present discussion will highlight the co-operative catalysis by metal nanoclusters for C-X/H bond activation with representative examples for the synthesis of therapeutic drugs and the discovery of novel anti-inflammatory scaffolds/agents.

*akchakraborti@niper.ac.in*