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Welcome to 'Microwaves in Medicinal Chemistry'

"The thematic section of this issue brings together a selection of international experts, from academic- and industry-based researchers to the 'movers and shakers' who manufacture and innovate."

Microwave chemistry and microwave-assisted organic synthesis remain undeniably effective tools in medicinal chemistry. The availability of safe, single-mode dedicated microwave units has led to the incorporation of this new technology into most research laboratories intent on accelerating drug-discovery, hit-to-lead and lead optimisation programs. The thematic section of this issue brings together a selection of international experts, from academic- and industry-based researchers to the 'movers and shakers' who manufacture and innovate.

In this issue

Michael Collins describes the remaining challenges in using microwaves; from a manufacturer's point of view, cost, ease of use and general acceptance still seem to be issues requiring solutions. Nicholas Leadbeater, a leading expert in microwave-assisted organic synthesis (MAOS), discloses a titanium-catalyzed esterification protocol with applications for the synthesis of esters of medicinal interest. Jesús Alcázar and Daniel Oehlrich present recent case studies of MAOS in an industrial setting. Drug discovery is a costly exercise with a high attrition rate; thus, more economical synthetic routes to leads and clinical candidates are desirable. MAOS leads to increased productivity, with the potential to reduce bottlenecks.

We are delighted to feature articles from a number of academic groups presenting synthetic routes to molecules of medicinal

interest. Mark Bagley and I separately describe microwave-mediated routes to kinase inhibitors or precursors. Luigi Agrofoglio describes the synthesis of nucleoside analogues, many of which show potential for the treatment of antiviral diseases. Oliver Sutcliffe outlines a route to cucurbit[*n*]urils, which have potential applications in drug delivery and as biosensors. John Deadman describes routes to 1,2-benzisoxazoles, which are useful bioisosteres for a number of heterocyclic systems. Finally, Mariarosa Moneghini eloquently demonstrates that microwaves have applications in areas other than synthesis, notably in the preparation of drug dispersions.

With such an interesting selection of topics, I sincerely hope that you will find the thematic section of this issue useful and insightful and that it might encourage you to employ this incredibly simple technique as a means of realizing the full synthetic potential of your laboratory.

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