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Advances at the intersection of chemical biology and medicinal chemistry

“This special issue highlights the key areas and challenges at the interface of chemical biology and medicinal chemistry and helps demonstrate the breadth and diversity of research that is driving this exciting field forward.”

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The goals of chemical biology have remained the same since its inception over 20 years ago, but the field has expanded beyond its historic definition of the perturbation of biological systems with molecular tools, and now encompasses various sub-branches that each push the boundaries of traditional discipline-based research and attest the breadth of chemical biology.

Given the opportunity to guest edit this issue of *Future Medicinal Chemistry*, I was keen to highlight the work currently taking place at the intersection of medicinal chemistry and chemical biology. I was also eager to emphasize the diversity of research emerging from this field, which I believe is successfully demonstrated by the sheer range of topics covered in this special issue.

This issue opens with a series of editorials and opinion-based pieces on cutting-edge research. The first paper is by David Margulis *et al.* [1], on chemical transducer programming of proteins, followed by an article in which Anna Hirsch and coworkers discuss methods for harnessing dynamic combinatorial chemistry [2]. Guillaume Lessene [3] outlines methods for targeting cell death pathways for therapeutic purposes, David Fairlie and Jody Mason [4] discuss peptide-based therapeutics for Parkinson's disease, while Giovanna Zinzalla [5] gives her perspective on the potential for targeting ubiquitin ligases.

Also featured in this special issue is original research from Maria Bolognesi and coworkers [6], in which they detail the rational design of an antiprion molecule, and Scott Lokey [7] *et al.*, who report on the permeability of cyclic peptide natural products. Following

this is a special report from Lyn Jones [8], which highlights the recent advances in cell permeable activity- and affinity-based probes, and a review by David Lapinsky and Douglas Johnson [9] on the use of clickable photoprobes in medicinal chemistry and chemical biology.

Joseph Audie and colleagues [10] review computer-enabled rational peptide drug design, while Christian Ottmann and Malgorzata Skwarczynska [11] review protein–protein interactions as drug targets (an area that is close to my heart). Jonathan Watts and Vivek Sharma [12] discuss the use of oligonucleotide-based therapies, and Elisabeth Martinez and coworkers [13] review the employment of small molecules that target epigenetics in cancer therapy. Jeff Mumm and colleagues [14] review molecular regulators of regeneration and Helen Osborn and Julia Bauer [15] review the potential for sialic acids as novel therapies for a broad range of diseases.

This special issue highlights the key areas and challenges at the interface of chemical biology and medicinal chemistry and helps demonstrate the breadth and diversity of research that is driving this exciting field forward. I hope you enjoy reading this issue.

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