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Biocatalysis in Organic Chemistry and Enzyme Engineering

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Message from the Guest Editors

Humans have utilized enzymes for thousands of years in the form of fermentation to produce and preserve foodstuffs such as cheese, beer, vinegar, and wine. Since the latter half of the 20th century, enzymes as catalysts in synthetic organic chemistry have gained more and more importance. Nevertheless, biocatalysis in organic chemistry suffered from two major limitations. First, many enzymes were not accessible in large enough quantities for practical applications. Second, many enzymes showed a narrow substrate scope, often poor stereo- and/or regioselectivity, and/or insufficient stability under operating conditions. Developments in enzyme engineering such as recombinant DNA technology and directed evolution are helping us to overcome these limitations. This Special Issue is aimed at developments that have popularized enzymes as part of the toolkit of synthetic organic chemists and biotechnologists.