
Diversification of Natural and Non-Natural Products Using Engineered Biosynthetic Pathways and Enzymes

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Abstract

Natural products often require further chemical modification, to improve their biological activities or physicochemical properties, for therapeutic and other applications. However, many of the most promising natural products, particularly the polyketides and nonribosomal peptides are highly complex molecules which offer limited opportunity for semisynthesis, and are invariably inaccessible through total synthesis on the scale required for drug development. Consequently, alternative biosynthetic engineering approaches are required, which can enable the rapid structural diversification and optimisation of promising natural product scaffolds. In this lecture our recent progress in biosynthetic engineering will be presented. In addition methods for using enzymes from biosynthetic pathways to create non-natural products will be described.

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