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SEMINAR

Designer Microorganisms for Sustainable Chemical Synthesis

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Edinburgh, UK

Wednesday, 26th July
12.00 pm

CIC biomaGUNE - Seminar Room

Engineered microorganisms are transforming the modern chemical industry. Using recombinant DNA technologies, cellular metabolism can be controlled and redirected to assemble small molecules of industrial importance directly from renewable feedstocks (e.g. sugar, CO_2, CH_4) by fermentation. This includes the use of industrial 'waste' as carbon feedstocks (e.g. lignin, PET) to enable the creation of circular economies. In my talk I will discuss our recent work on the bio-production of two high-value industrial chemicals from post-consumer waste using de novo enzyme cascades in the bacterium Escherichia coli. I will also present the use of biocompatible chemical catalysts as a method to diversify cellular metabolism in situ, enabling the use of designer microorganisms to access non-natural products. Together, this work highlights the vast research opportunities at the interface of synthetic biology and synthetic chemistry.