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Simposios

AN EVOLUTIONARY APPROACH FOR COMBINATORIAL CHEMISTRY BY GENETICS

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Discovering a bioactive natural product with pharmacological potential is expensive and time consuming. Current strategies implement a “culture-extract-screen” approach which involves large-scale and costly experiments. We have developed a method that may accelerate early stages of drug discovery pipelines by diversifying known bioactive natural products. We used Beta-lactams and aminoglycosides as proof-of-concept models as they represent classic scaffolds that have been widely characterized.

Our work incorporates synthetic biology methods, with phylogenomic analysis and *in vivo* screening into a combinatorial chemistry by genetics approach to explore chemical diversity around bioactive chemical scaffolds in short time at low cost. We believe this approach could positively impact the biodiscovery pipeline for most pharmacologically relevant natural product classes, effectively discovering novel drugs, cheaper and faster.