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A nontoxic, highly efficient method for transformation and transfection

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Abstract

The ability to direct the penetration of DNA into cells is called transformation when the microbes are bacteria or yeast and transfection when the target organisms are of a higher order. The compounds that serve as transformation agents are dianilides of isophthalic or dipicolinic acid. These simple compounds permit transformation more efficiently than many currently available methods and are able to transform DNA plasmids that are as large as 20 kilobases. These plasmids are significantly larger than those transformed by conventional methods used for bacteria. When these compounds transform yeast, dramatic increases are observed when ssRNA, a key element of the standard protocol, is eliminated. These tris-arene transformation agents are nontoxic at concentrations up to 1000 µM (1 mM) and show no mutagenic behavior in the Ames test. The methodology, mechanisms, and visualization methods will be discussed in this presentation.

Biography

Dr. George Gokel received the Ph.D in Chemistry from the University of Southern California and did postdoctoral studies in the laboratory of Nobel Laureate Donald Cram at UCLA. He is currently Distinguished Professor of Science and Director of the University's Center for Nanoscience. He has published more than 400 papers, written or edited 16 monographs, and is named as an inventor on 15 issued patents. He serves on the editorial boards of more than a dozen journals.