



The Transfection Experts

TRANSFECTION 101: Understanding and Optimizing Nucleic Acid Delivery

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Nucleic acid delivery into cells using either chemical transfection and/or electroporation forms the basis of many cell biology experiments. In this tutorial, we will provide an overview of current transfection tools with emphasis on their mechanism of action including the pros and cons of each. The factors affecting delivery of different nucleic acids such as DNA, siRNA and mRNA will be discussed. Finally, experimental parameters such as cell health, amount and quality of nucleic acid, amount of transfection reagent, effect of inhibitors, etc. will be discussed to help researchers maximize expression while minimizing toxicity. Knowledge and optimization of these factors is particularly imperative when working with hard-to-transfect cell types including primary cells that closely mimic the complex biology of in vivo systems.