

'Third generation' vaccines promise simpler, improved treatments for infectious disease

Over the last several decades, the advent of biotechnology has enabled a brand new class of “third generation” vaccines, including nucleic acid (DNA and RNA) vaccines. These nucleic acid vaccines deliver a DNA or RNA sequence into tissue, where the cells that take up the sequence synthesize the encoded protein within the cell. The result is an antigen protein, derived from the viruses, bacteria, parasites, or tumors targeted by the vaccine, which offers protective immunity from the pathogenic agent from which the DNA or RNA was [derived](#).

Nucleic acid vaccines have the potential to change the vaccination landscape through easier, more scalable, less expensive and logistically simpler vaccines that better prevent infectious disease. What's more, immunotherapies are being developed to treat and mitigate diseases that have never before been addressed in this way, including allergies, cancer and autoimmune disorders. Previously, technical challenges have stood as obstacles to safely administering these vaccines while delivering a strong level of effectiveness.

In recent years, however, new technologies are emerging that may help DNA vaccines achieve greater efficacy and meet their true potential. Delivery devices like electroporation and needle-free jet injectors aim to increase the amount of gene transfer into the cells, attempting to achieve higher antigen expression.

Read full original article: [The Next Generation of DNA Vaccines Is Poised to Transform the Healthcare Landscape](#)