

RNA Vaccines - An Innovative Approach to Treat Infections

Dear Readers,

New Year Greetings from the Editorial Board of IJOPP!

We have all heard the word 'Vaccination' from a young age. Vaccination is a simple, safe and efficient mode of safeguarding humans against infectious diseases. Vaccines improve one's immunity by stimulating the body's natural defense mechanism to combat infections.

Vaccination is a huge accomplishment of modern medicine, significantly reducing the occurrence of infectious diseases like measles and eradicating others, like polio and smallpox. However, regular vaccine approaches have not been a success for rapidly expanding and emerging microorganisms including influenza, Ebola and Zika viruses. A new approach to vaccines has also evolved over the decade to treat harmful infections and cancer.

Conventional vaccination involves administering inactivated bacteria or viruses or proteins made by these organisms. RNA-based vaccines have a slight edge as

they are faster and cheaper to produce than traditional vaccines. These vaccines are also safer for patients, as they are not produced using infectious agents. Production of RNA vaccines is laboratory-based and the process could be standardized and scaled, allowing quick responses to large outbreaks, pandemics and epidemics.

Real challenges to face with mRNA vaccines are the mRNA strand in the vaccine may induce unintended immune responses, delivering the vaccine effectively to cells is complicated as free RNA in the body is rapidly disabled. Therapeutic applications and reluctances include scaling up good manufacturing practice (GMP) production, implementing regulations, proper documentation of safety and efficacy. These vaccines should be frozen or refrigerated and a cold chain should be provided for proper storage. This will surely create issues in places with limited or no refrigeration facilities. It is important that research focuses on new avenues like mRNA and DNA vaccines to combat diseases, especially the newer ones like the current COVID pandemic.

DOI: 10.5530/ijopp.14.1.1

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