I first encountered research on mRNA vaccines in 2014 in an article which I cannot now find. But that article pointed to the several 'challenges' with getting reliable consistent results from mRNA trials. This was pre-COVID. The need for large scale trials in order to prove the efficacy of mRNA vaccines was emphasized.

Years later, when mRNA vaccines were posed as a treatment for COVID, and the uncertainty of using mRNA versus waiting for trials of a dead-virus approach, I perceived that the mRNA was being proposed for reasons other than efficacy. The fact that researchers were suddenly swamped with funding just for mRNA study, and eventually adopted without full trials, brought me to conclude that this was an act of opportunity.

I have included a few notes from current research but almost all published info is willing to defer to the mRNA vaccines. We have seen that the results from mRNA and COVID follow the concerns raised per-COVID. Inconsistent results and limited duration.

My personal experience was that six months after vaccination, I got COVID. At least, having had the disease, I now feel immune to recurrence. I do not feel that any vaccine made any difference in the outcome. But certain researchers/producers got very rich.

Ken Capron
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mRNA vaccines work by introducing a piece of mRNA that corresponds to a viral protein, usually a small piece of a protein found on the virus's outer membrane. (Individuals who get an mRNA vaccine are not exposed to the virus, nor can they become infected with the virus by the vaccine.)

How do COVID-19 messenger RNA (mRNA) vaccines work? Traditional vaccines put a weakened or inactivated germ into our bodies. Messenger RNA (mRNA) vaccines, like the Pfizer and Moderna COVID-19 vaccines, teach cells how to make a protein that triggers an immune response if someone gets infected.

mRNA, which is the technology used in the Pfizer and Moderna vaccines, degrades in the body naturally after a few days, and the spike protein it creates only stays for a couple weeks.

To trigger an immune response, many vaccines put a weakened or inactivated germ into our bodies. Not mRNA vaccines. Instead, mRNA vaccines use mRNA created in a laboratory to teach our cells how to make a protein—or even just a piece of a protein—that triggers an immune response inside our bodies.

https://www.nature.com/articles/d41586-021-02483-w

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3991152/
mRNA as the basis for novel, nucleotide-based vaccines

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5906799/
mRNA vaccines — a new era in vaccinology - PMC – NCBI
Abstract
mRNA vaccines represent a promising alternative to conventional vaccine approaches because of their high potency, capacity for rapid development and potential for low-cost manufacture and safe administration. However, their application has until recently been restricted by the instability and inefficient *in vivo* delivery of mRNA. Recent technological advances have now largely overcome these issues, and multiple mRNA vaccine platforms against infectious diseases and several types of cancer have demonstrated encouraging results in both animal models and humans. This Review provides a detailed overview of mRNA vaccines and considers future directions and challenges in advancing this promising vaccine platform to widespread therapeutic use.

Prior to the COVID-19 pandemic, mRNA vaccines targeting infectious diseases including HIV-1, rabies, Zika and influenza were already in clinical trials, as were mRNA vaccines targeting multiple hematologic and solid organ malignancies (Pardi, 2018).

https://publichealth.jhu.edu/2021/the-long-history-of-mrna-vaccines
The biggest challenge was that mRNA would be taken up by the body and quickly degraded before it could “deliver” its message—the RNA transcript—and be read into proteins in the cells.