



## Post-COVID-19 Vaccination Syndrome may be Associated with Autoaggressions

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### Introduction

The number of people vaccinated against COVID-19 is increasing. This has allowed a better detection and understanding of possible sequelae, especially related to autoimmune phenomena. This is consistent with our experience that anti-DNA and anti-RNA autoantibodies are increasingly common in the blood. One consequence of this would be that mitochondriopathy diseases are becoming common. In this context, Sachinidis and Garyfallos recently addressed a possible explanation for these phenomena, emphasizing the role of age-associated B cells [1].

The duration of immune protection by vaccines is apparently shorter than that by natural infection [2]. Thus, reinfection or long-covid syndrome may be more likely to occur after vaccination.

### Open questions

#### What does Wikipedia write? [3]

*«Since mRNA is already enzymatically degraded in host cells within a short time and can also lead to cytokine release with undesirable effects via activation of toll-like receptors, research into RNA-based drugs was initially hesitant.*

*When used as a vaccine, an mRNA encoding a selected protein is administered. In the cells of the vaccinee, the ingested mRNA is used to synthesize this protein ribosomally. It can then be presented extracellularly to the immune system on the cell surface and act as an antigen. As a result, different immune responses can be triggered. This process can be used for various purposes, for example in cancer therapy as well as for influenza vaccines and for rabies vaccines.*

*If, on the other hand, modRNA (nucleoside-modified mRNA) is used instead of normal mRNA, the rapid enzymatic degradation and activation of toll-like receptors can be slowed down or prevented, which massively accelerated the development of mRNA-based vaccines.»*

One might assume from the text that the mRNA inoculations act intracellularly only on ribosomes in the cytosol, but not in the cell nucleus. This assertion is once again confirmed by Wikipedia: [4]

*«In contrast to DNA vaccines, RNA vaccines are not transported into the cell nucleus and are not dependent on import into the cell nucleus and transcription. In contrast to DNA vaccines, there is also no risk of insertion into genomic DNA or evidence of genetic damage; this would require two additional enzymes that do not occur in human cells. mRNA has a comparatively short biological half-life. Permanent retention in the cell is thus ruled out, especially since it is destroyed by cytotoxic T cells in the course of the immune response anyway. Compared to DNA, RNA is relatively sensitive to degrading enzymes (in the case of RNA, these are RNases), which occur ubiquitously.»*

### Discussion

WThus, it is known

- that modified nucleotides in RNA decrease degradation in the cytosol (what the manufacturers of vaccinations need so that the effect is not too short-lived),
- that it is an unproven assertion that RNA cannot be converted to DNA, and
- that mRNA is incorporated into the genome in growing (liver) cells in vitro [5].

Long-term production of spike proteins must be ensured if the vaccination is to fulfill its purpose and regular boosting is not required. For this purpose, after enzymatic remodeling, integration of the modRNA into the cell nucleus DNA is inevitable.

The claim that the modRNA vaccines do not induce gene manipulation must be rejected as meaningless, since the long-term production of spike proteins and the induction of antibodies must be considered the purpose of the vaccines, which is only feasible via DNA (6). The official view that mRNA vaccines act only in the

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cytosol of cells should be questioned. It is said (4) that humans lack two enzymes that would allow mRNA to enter the nucleus and integrate with endogenous DNA. This claim is scientifically unproven, it was written in a polemical article in the "Deutsches Ärzteblatt" [7].

Autoimmune manifestations and reactions associated with vaccination against SARS-CoV-2 infection have been described. For example, both exacerbation of preexisting autoimmune and rheumatic diseases and new onset of such diseases early in the vaccination campaign were demonstrated in three different countries by Watad et al. [8]. Among 27 cases from Israel, the United States, and the United Kingdom, 17 individuals experienced an episode of background autoimmune and rheumatic disease, whereas 10 individuals had new-onset disease, all within 28 days of vaccination.

The authors suggested a common pathogenetic mechanism of vaccine-induced autoimmune reactions with autoimmune and rheumatic diseases, as the vaccines used are mainly based on Toll-like receptor (TLR)-7/8 or TLR-9 agonists. The latter is known to play a major role in the pathogenesis of autoimmune and inflammatory rheumatic diseases. The hypothesis is supported by the stimulation of innate immunity by TLRs induced by nucleic acid-based vaccines such as messenger RNA (mRNA), a mechanism that is well documented in triggering various inflammatory autoimmune diseases [9]. Similarly, in a cohort of 1377 patients with rheumatic diseases vaccinated with two doses of the mRNA SARS-CoV-2 vaccine, flare-ups of rheumatic disease were reported in 11% of patients [9].

While the majority of published studies on the adverse effects of SARS-CoV-2 vaccination have been conducted with the two main mRNA vaccines, Pfizer-BioNTech and Moderna, a Mexican study included 225 individuals with autoimmune and inflammatory rheumatic diseases vaccinated with six different types of vaccines, including Pfizer-BioNTech and Moderna and the Oxford-AstraZeneca vaccine [10]. According to the results, fatigue, headache, and muscle pain were reported in 34.7%, 30.6%, and 29.3% of participants, respectively.

Severe allergic reactions have also been reported in relation to immunologic reactions induced by SARS-CoV-2 vaccines and have been reported by Selvaraj et al. [11] Allergic reactions have been described to be induced by antigenic fragments of the virus, such as spike protein glycoprotein fragments or stabilizers present in the vaccine molecules. Both can cause severe allergic reactions such as anaphylaxis.

## Conclusions

Autoimmune reactions and manifestations after vaccination appear to be increasing as the number of vaccinated increases accordingly with additional doses. The mechanisms behind

autoimmune phenomena in vaccinated individuals, immunologic responses, and implications should be thoroughly investigated and interpreted.

It is surprising that complete analyses of immune status are regularly performed in HIV-positive patients, but hardly in covid-19 patients and vaccinated individuals. According to the present results, one must postulate the post-COVID-19 vaccination syndrome as the clinical picture. It includes various autoimmune phenomena, especially autoaggressions against the genetic material in the mitochondria and in the cell nuclei.

## Outlook

There is a therapy for DNA, using the enzymes that also normally repair DNA when it is altered. The necessary enzymes are produced by an Italian company [12].

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