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# 'Disturbing' Study Shows COVID mRNA Vaccine Components Persist in Blood Up to 28 Days

*Dr. Peter McCullough said government agencies and vaccine developers need to explain the lack of standard pharmacokinetic studies — studies of how the body absorbs, distributes, metabolizes and eliminates the vaccines.*

by **John-Michael Dumais**

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Components of the Moderna SPIKEVAX COVID-19 mRNA vaccine can persist in the bloodstream for up to 28 days after injection, according to authors of a **preprint study** published July 27 on medRxiv.

The study, led by **Dr. Stephen J. Kent** at the University of Melbourne, challenges previous claims about how quickly the body clears the vaccines and could further our understanding of **mRNA vaccine** efficacy and **side effects**.

The research, which tracked 19 people who received a **Moderna booster shot**, detected both mRNA and **lipid nanoparticle** (LNP) components of the vaccine in blood samples as early as four hours post-injection. In some participants, trace amounts of mRNA were still detectable nearly a month after vaccination.

**Dr. Michael Palmer**, a member of **Doctors for COVID Ethics** and co-author of "**mRNA Vaccine Toxicity**," told **The Defender** the study is one that "Moderna should have submitted to the FDA [U.S. Food and Drug Administration] and other regulators prior to the approval of their vaccine but didn't."

"The 'surrogate' data that were submitted [by Moderna] instead suggested a much faster elimination from the bloodstream," he added.

**Dr. Peter McCullough** told The Defender the study data were "disturbing" and that the findings were "nearly identical" to a study outlined in a 2023 paper — not cited by the study authors — which also found mRNA vaccine components **circulating in the blood up to 28 days** after immunization.



**Government agencies, vaccine companies 'owe the world an explanation'**

The study examined the **pharmacokinetics** of **mRNA vaccines in human blood**. This refers to how the body processes a substance over time, including its absorption, distribution, metabolism and excretion.

The researchers developed new methods to quantify both mRNA and specific components of the LNPs from the **Moderna SPIKEVAX** vaccine in frequent blood samples from the subjects who received a booster shot.

LNPs, composed of several types of lipids, are the delivery system for the mRNA. One key component, ionizable lipids, helps protect the mRNA and facilitate its entry into cells.

Key findings of the study include:

- Both mRNA and a specific **ionizable lipid (SM-102)** were detectable in blood samples within four hours of vaccination.
- Levels of these components peaked one to two days after injection
- In most subjects, mRNA remained detectable for 14-28 days post-vaccination.
- The decay rates of intact mRNA and the ionizable lipid were identical, suggesting that intact lipid nanoparticles recirculate in the bloodstream.
- The study found a correlation between the levels of mRNA and ionizable lipids in the blood and an increase in antibodies against **polyethylene glycol** (PEG), another component of the vaccine's lipid nanoparticles.

**Karl Jablonowski, Ph.D.**, senior research scientist at **Children's Health Defense**, highlighted the vaccine's quick entry and persistence in the bloodstream. "For at least two weeks, high concentrations of LNPs and accompanying mRNAs have open access free rein to every part of your body — at least every part that blood goes to."

Palmer noted that the integrity of the RNA measured by the researchers was very low — no more than 20% intact mRNA in the bloodstream. He suggested this could be demonstrating "some sort of quality issue."

"It seems likely that this number reflects the percentage of intact mRNA at injection," he said. "Whether this results directly from vaccine production or from inadequate conditions of storage prior to injection is unclear."

Palmer also pointed out the low amount of injected vaccine — on the order of 0.1% — that showed up in the bloodstream of study participants. He said:

> "This probably means that the **intramuscular injection** worked as intended, and [that] the vaccine was not directly injected into the bloodstream. However, in some patients, such a direct injection will occur — this is a numbers game. It seems quite possible that this unfortunate group of patients are the ones suffering **severe side effects**."

McCullough said the study is limited to just 28 days of observation and the "complete half-life and circulatory time for mRNA and mechanisms of elimination from the body should be known by now."

Standard pharmacokinetic and **pharmacodynamic** (drug effects on the body) studies "should have been done in 2020 as part of Operation Warp Speed." He said:

> "Is mRNA being cleared from blood into cells and tissues where it resides permanently or is it being eliminated from the body altogether? Government agencies and the vaccine companies owe the world an explanation."

**Jessica Rose, Ph.D.**, a Canadian researcher with a background in immunology and computational biology, in a **presentation last year** highlighted the importance of understanding the biodistribution of vaccine components.

"The [2021] pharmacokinetic **studies from Japan** ... did find a concentration, albeit small, of these things in the brain," she noted.



**50% of subjects had detectable amounts of mRNA 28 days after vaccination**

The researchers recruited 19 participants who were scheduled to receive a bivalent Moderna SPIKEVAX booster shot. The subjects ranged in age from 24 to 70, with a mean age of 42. The majority (63%) were female, and all had previously received three to four doses of monovalent **COVID-19 vaccines**.

To track the vaccine components in the body, the researchers collected blood samples at multiple time points. The first sample was taken before vaccination, followed by samples at four hours post-vaccination and then at various intervals up to 28 days after the booster shot. On average, nine blood samples were collected from each participant over this period.

The study employed novel methods to detect both mRNA and the ionizable lipid SM-102 in blood samples.

The researchers also measured antibody responses, including those against the spike protein and against **PEG**, a component of the LNPs. Additionally, they developed an assay to assess how the LNPs interacted with different types of immune cells in blood samples.

Detailed findings include:

**1. mRNA and lipid detection in blood**: The study found that both mRNA and the ionizable lipid SM-102 were detectable in blood samples as early as four hours after vaccination. Both components reached their peak concentrations between one and two days post-vaccination.

**2. Persistence and decay rates**: One of the study's key findings was the prolonged detectability of vaccine components in the blood. In 50% of the subjects, small amounts of mRNA were still detectable 28 days after vaccination.

The researchers also found that the proportion of intact mRNA molecules decreased slowly but consistently over the study period. The decay rates of intact mRNA and the SM-102 lipid were nearly identical, with both showing a half-life of approximately 1.14 days.

"The slow degradation of the mRNA despite circulating in blood in vivo at 37 °C … and the identical decay rate of intact mRNA and the ionizable lipid, suggests that the mRNA was largely protected in circulation within the lipid nanoparticle," the authors stated.

**3. Antibody response**s: The study measured antibody responses against both the spike protein and PEG.

**Anti-PEG antibodies** were already detectable in most subjects before vaccination and showed a modest increase following the booster.

The researchers found a positive correlation between the peak levels of mRNA and ionizable lipids in the blood and the subsequent increase in anti-PEG antibodies — a 1.4 times increase in **immunoglobulin G (IgG) antibodies** and a 4.6 times increase in **IgM antibodies**. This demonstrates an unintended immune response against a component of the vaccine delivery system itself.

The authors did not observe a correlation between pre-existing anti-PEG antibodies and the decay rate of mRNA or ionizable lipids in the blood. This suggests intrinsic human physiological processes rather than pre-existing antibodies may be responsible for the clearance of vaccine components, at least at the antibody levels observed in this study.

As expected, the vaccine also boosted antibodies against the spike protein. The average increase in spike-specific IgG was 21.3 times at 28 days after vaccination.

**4. Cellular interactions**: The researchers developed a procedure to examine how LNPs interacted with different immune cells in blood samples. They found that the nanoparticles were primarily associated with monocytes and B-cells, with minimal interaction with other cell types such as **T-cells** and **natural killer cells**.

**Monocytes** are part of the innate immune system and can engulf foreign particles in a process called **phagocytosis**. Their interaction with the nanoparticles suggests they may play a role in processing and clearing the vaccine components.

**B-cells** are responsible for producing antibodies. Their interaction with the nanoparticles could be part of the process that leads to antibody production, including anti-PEG antibodies.

Notably, the researchers observed an inverse relationship between monocytes' ability to interact with LNPs and the increase in anti-PEG antibodies following vaccination. The authors said this suggests the efficiency of monocyte clearance of the nanoparticles may influence how much the immune system develops antibodies against PEG.



### Autopsies needed to understand effect of vaccines on brain, other organs

The study's authors acknowledged several limitations, including a small sample size, possible limits in detection of vaccine components and that results for booster recipients may differ from those receiving initial vaccinations.

The study only examined components in the blood and did not investigate their presence or effects in other tissues.

Future research suggestions include exploring long-term implications of persistent vaccine components and anti-PEG antibodies in larger, more diverse populations, and investigating the formation of **biomolecular coronas** — a layer of proteins, lipids and other biological molecules that form around nanoparticles from mRNA vaccines.

Rose emphasized the importance of reproducing findings, particularly through autopsies, to definitively understand the full impact of these vaccines on various organs, including the brain.

**John-Michael Dumais**
John-Michael Dumais is a news editor for The Defender. He has been a writer and community organizer on a variety of issues, including the death penalty, war, health freedom and all things related to the COVID-19 pandemic.