Letter to the Editor

Major concerns about a rcently accepted manuscript

A recently published article in Autoimmunity (https://doi.org/10.1080/08916934.2025.2551517) raises serious scientific concerns. The senior author, McKernan, is well known for his controversial claims circulating on social media, particularly within anti-vaccine communities. He has repeatedly asserted that mRNA vaccines contain excessive amounts of DNA, and further alleged that the Pfizer/BioNTech vaccine contains the SV40 enhancer element, which he claims could result in severe adverse effects, such as genomic integration of DNA into host cells and an increased risk of cancer. These assertions, however, have been repeatedly and conclusively refuted by the scientific community over the past several years. A responsible scientist would have addressed these criticisms by conducting rigorous experimental validation, yet McKernan has failed to do so, instead perpetuating these claims in preprints, on ResearchGate, and via social media platforms. Examples include:

1. https://osf.io/preprints/osf/mjc97_v1
2. https://www.researchgate.net/publication/375065939_DNA_fragments_detected_in_monovalent_and_bivalent_PfizerBioNTech_and_Moderna_modRNA_COVID-19_vaccines_from_Ontario_Canada_Exploratory_dose_response_relationship_with_serious_adverse_events

All of these claims have been thoroughly disproven by independent scientists and fact-checking organizations, for example:

1. https://www.factcheck.org/2023/10/scicheck-covid-19-vaccines-have-not-been-shown-to-alter-dna-cause-cancer/
2. https://science.feedback.org/review/claim-covid-19-mrna-vaccines-dna-contaminants-study-unknown-provenance-no-evidence-covid-19-mrna-vaccines-alter-dna-people/

The manuscript contains the same unsupported claims, flawed conclusions, and selective use of data that have characterized McKernan's prior writings. In my opinion, the current paper requires further editorial action.

As scientists, it is imperative to stand together against "attention-seeking" publications from the anti-vaccine community, particularly when such claims are amplified by individuals holding academic titles. Unfortunately, certain individuals exploit their positions to disseminate misinformation without robust experimental support, sometimes even establishing pseudo-journals to publish unscientific work. Such practices undermine scientific integrity and must be challenged.

The article in question, for instance, analyzed batches of Pfizer/BioNTech and Moderna vaccines for residual DNA content. The authors attempted to correlate adverse events from Canadian VAERS data with DNA content in these vaccine lots. However, their qPCR data did not support such a correlation. None of the batches exceeded the regulatory threshold of 10 ng DNA per dose. Even though two Pfizer/BioNTech batches showed slightly elevated SV40 amplicon levels (16.1 and 23.7 ng), these same batches demonstrated significantly lower DNA concentrations with other amplicons (2.4 and 3.9 ng for the Spike gene, 1.8 and 3.4 ng for Ori). When averaged, none of the batches exceeded the accepted limit, and Moderna batches contained approximately ten-fold less DNA than Pfizer/BioNTech. Notably, the batch with the highest number of adverse events (FD0810: 941 AES and 154 SAES) had among the lowest DNA levels. Thus, the

hypothesized positive correlation between DNA content and adverse events is demonstrably false—in fact, the relationship suggests an anti-correlation.

McKernan nevertheless attempted to support his claims by using the Qubit assay, a method already demonstrated to be inappropriate for DNA quantification in RNA-rich mixtures. Two independent publications (1,2) have shown that reliable quantification requires complete RNA depletion, which was not achieved. McKernan's protocol involved only a brief 15-minute RNase A treatment, insufficient given the ~3000:1 RNA:DNA ratio. Unsurprisingly, this produced artificially inflated DNA measurements, rendering his conclusions invalid. Consequently, the claim that mRNA vaccines contain excessive DNA is unfounded and reflects personal advocacy rather than scientific rigor.

The COVID-19 pandemic has unfortunately revealed a number of academics who have abandoned scientific standards in favor of self-promotion, exploiting social media to spread misinformation. Scientific responsibility requires careful evaluation of data, rigorous validation, and acknowledgment of errors. By contrast, this publication represents opinion and conjecture presented as evidence.

In contrast, growing evidence demonstrates that mRNA vaccines represent a transformative advance in medicine. They elicit both humoral and cytotoxic immune responses, can be administered without adjuvants, generate durable memory, and generally exhibit low rates of adverse events (apart from myocarditis, occurring at an incidence of 2–3 per 100,000 doses). Furthermore, novel applications of mRNA vaccines are emerging, including recent breakthroughs in oncology. For instance, mRNA-based neoantigen vaccines have shown promising survival outcomes in pancreatic ductal adenocarcinoma, a cancer with historically dismal prognosis (3,4).

I therefore urge the Editor of Autoimmunity to consider flagging this publication, similar to the editorial action taken against the article by König & Kirchner in the MDPI Journal (5), which propagated nearly identical false claims. If the scientific community does not collectively act to counter such pseudoscientific narratives, the proliferation of misinformation threatens to erode public trust and compromise the integrity of biomedical research (6).

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