Exhibit 602

What happens to the LNP after it delivers the mRNA?

https://drkevinstillwagon.substack.com/p/a-new-question-answered

Study

Apparent Cytotoxicity and Intrinsic Cytotoxicity of Lipid Nanomaterials Contained in a COVID-19 mRNA Vaccine

https://www.researchgate.net/publication/374760573_Apparent_Cytotoxicity_and_Intrinsic_Cytotoxicity_of_Lipid_Nanomaterials_Contained_in_a_COVID-19_mRNA_Vaccine

A new question answered:

...What happens to the LNP after it delivers the mRNA?

DR. KEVIN STILLWAGON

JAN 2, 2024

The Lipid Nanoparticles used in Pfizer and Moderna are basically large fat bubbles that contain smaller fat bubbles. The large fat bubble is about 100 nm in diameter, curiously the size of a virus particle. The size of the larger fat bubble is controlled by the presence of Polyethylene Glycol or PEG. The smaller fat bubbles are what contain the mRNA, and these will self-assemble in the manufacturing process. No, they are not assembling into nanobots that connect to the internet, they just automatically surround the negatively charged mRNA due to their positive charge. Neither Pfizer nor Moderna has revealed how many of these smaller fat bubbles are in each larger bubble.

But they did tell us what lipids they used. Pfizer used ALC-0315, Moderna used SM102. They are chemically different. They also revealed the nucleotide sequences of their proprietary mRNA concoctions. They are different from each other, and different from the original nucleotide sequence that was published for the Wuhan spike protein. So, they are making different proteins that don't even match what was on the virus. That fact alone should have made anyone using their God given intelligence extremely suspicious.

But it's worse than that. To make the mRNA more stable and last a long time, Pfizer and Moderna both used N1-methylpseudourine in various locations in their mRNA sequences. Pfizer used 801 of them, Moderna used 626. About two years after this stuff was injected into billions of humans, we learned that because of these pseudouridines, ribosomes that read the codes that make the proteins will chop off smaller proteins before the big one is done. These smaller proteins can either be biologically active and toxic, or they can closely resemble normal body proteins, resulting in autoimmune

reactions. All this protein stuff is bad enough, but someone asked: What happens to those lipids that got left behind?

The answer is, they become extremely toxic and damaging to cellular components.

In this 30 minute video, Dr. Gabriele Segalla, Independent Research Biochemist, Specialist in Chemistry of microemulsions and colloidal systems, author of scientific publications and holder of various international patents (orcid.org/0000-0002-5969-3732), examines significant and surprising new aspects of the chemical-physical criticalities and toxicological potential of an mRNA vaccine.

The entire docu-video is based on the study by G. Segalla published in peer-review, on October 16, 2023, in the International Journal of Vaccine Theory, Practice, and Research (IJVTPR), with the title "Apparent Cytotoxicity and Intrinsic Cytotoxicity of Lipid Nanomaterials Contained in a COVID-19 mRNA Vaccine".

Here's a link to the video: https://rumble.com/v40b2as-the-pandoras-vaccine.html

Here's a link to the study: https://www.researchgate.net/publication/374760573_Apparent_Cytotoxicity_and_Intrinsic_Cytotoxicity_of_Lipid_Nanomaterials_Contained_in_a_COVID-19_mRNA_Vaccine

Thanks for reading, and thanks for staying smart.

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13 Comments

Write a comment...

INGRID C DURDEN 8 hrs ago

wow. Not good. From the moment I saw they used PEG (and Johnson used Polysorbate, from the same toxic family) I knew I did not want this IN my body. I do not even want it ON my body - it sits in many shampoos and 2 years ago consumer magazine tested 150 and found chemical leftovers from the production in half of them PEG is made from poisonous, flammable and explodable gasses. If all goes well, the poison is 'washed' out. If not, leftovers are in the final product. This is what the chemist explained to me the year I worked at a chemical plant were basics for beauty products were made. I forgot a lot, but not that ! After all, why don't they make vaccines in oral form to begin with? Then the product goes through the digestive system and that will already filter out some grub. The vaccine for rabies in animals in Europe is oral and lasts their whole life. In the US they have a yearly and a 3-yearly (which is the same as the yearly only more expensive) injectable. Money money.

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7 replies by Dr. Kevin Stillwagon and others

JustANobody 7 hrs ago

I remember seeing this on CT. Health And Human Services where SM102 was listed as an ingredient in Moderna. When it first came out. I checked and it said NOT for animal or Human use. It was quickly removed from the website. I believe it was shared by accident. Crazy and Dangerous!

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Apparent Cytotoxicity and Intrinsic Cytotoxicity of Lipid Nanomaterials Contained in a COVID-19 mRNA Vaccine

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Gabriele Segalla

References (36)

Abstract

The medicinal preparation called Comirnaty by Pfizer-BioNTech is an aqueous dispersion of lipid nanomaterials, intended to constitute, after thawing and dilution, the finished product for intramuscular injection. In the present study, we examine some evident chemical-physical criticalities of the preparation, particularly regarding the apparent and the intrinsic pKa (acid dissociation constant) of its main excipient, the ionizable cationic lipid ALC-0315. The very high value of its intrinsic pKa causes, after internalization and endosomal escape of LNPs, a sudden increase of its cationic charge concentration and consequently the formation of pro-inflammatory cytokines and ROS (reactive oxygen species), that can disrupt the mitochondrial membrane and release its content, cause RNA mistranslation, polymerization of proteins and DNA, DNA mutations, destruction of the nuclear membrane and consequent release of its content. Additionally, the apparently low pKa value (6.09) of ALC-0315 associated with other lipids in the LNP, is not suitable for intramuscular application. Its value is too low to enable a proper transfection of host cells, despite what is stated by EMA (European Medicines Agency) in its Assessment report dated 19 February 2021, in flagrant contradiction with the same bibliographic source therein cited. Furthermore, the exceptional penetrability, mobility, chemical reactivity and systemic accumulation of uncontrollable cationic lipid nanoparticles, with high cytotoxicity levels, shed in unpredictable biological locations, even far from the site of inoculation, are all factors that can lead to an unprecedented medical disaster. Meanwhile, further immediate studies and verifications are recommended, taking into consideration, in accordance with the precautionary principle, the immediate suspension of vaccinations with the COVID-19 mRNA- LNP-based vaccines.

Apparent Cytotoxicity and Intrinsic Cytotoxicity of Lipid Nanomaterials Contained in a COVID-19 mRNA Vaccine

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Abstract

The medicinal preparation called *Comirnaty* by Pfizer-BioNTech is an aqueous dispersion of lipid nanomaterials, intended to constitute, after thawing and dilution, the finished product for intramuscular injection. In the present study, we examine some evident chemical-physical criticalities of the preparation, particularly regarding the apparent and the intrinsic pKa (*acid dissociation constant*) of its main excipient, the ionizable cationic lipid ALC-0315. The very high value of its intrinsic pKa causes, after internalization and endosomal escape of LNPs, a sudden increase of its cationic charge concentration and consequently the formation of pro-inflammatory cytokines and ROS (reactive oxygen species), that can disrupt the mitochondrial membrane and release its content, cause RNA mistranslation, polymerization of proteins and DNA, DNA mutations, destruction of the nuclear membrane and consequent release of its content. Additionally, the apparently low pKa value (6.09) of ALC-0315 associated with other lipids in the LNP, is not suitable for intramuscular application. Its value is too low to enable a proper transfection of host cells, despite what is stated by EMA (European Medicines Agency) in its Assessment report dated 19 February 2021, in flagrant contradiction with the same bibliographic source therein cited. Furthermore, the exceptional penetrability, mobility, chemical reactivity and systemic accumulation of uncontrollable cationic lipid nanoparticles, with high cytotoxicity levels, shed in unpredictable biological locations, even far from the site of inoculation, are all factors that can lead to an unprecedented medical disaster. Meanwhile, further immediate studies and verifications are recommended, taking into consideration, in accordance with the precautionary principle, the immediate suspension of vaccinations with the COVID-19 mRNA- LNP-based vaccines.

Keywords: *mRNA vaccine, LNP, lipid nanoparticles, ROS, reactive oxygen species, pKa, apparent pKa, intrinsic pKa*

INTRODUCTION

Lipid nanoparticles (LNPs) in the two COVID-19 mRNA-LNP-based vaccines (Comirnaty by Pfizer/BioNTech and Spikevax by Moderna Therapeutics) are formed by four different types of lipids: an ionizable cationic lipid whose positive charge binds to the negatively charged backbone of the mRNA, a polyethylene glycol (PEG)-linked lipid that helps prolonging the half-life of the composition, a phospholipid to facilitate the formation of a

two-layer structure, and cholesterol having a function of membrane fluidity modulator/stabilizer (Figure 1).

Figure 1. "Structures of the lipid constituents of the LNPs of the COVID-19 mRNA vaccines" reprinted from Figure 8, pag 16989 from the article by Tenchov, R., Bird, R., Curtze, A. E., & Zhou, Q, entitled "Lipid nanoparticles – from liposomes to mRNA vaccine delivery, a landscape of research diversity and advancement" published in *ACS Nano* 2021, 15, 11, 16982–17015, 15(11), 16982–17015, https://pubs.acs.org/doi/full/10.1021/acsnano.1c04996. Copyright © by the authors 2021 and licensed under CC-BY 4.0.

These nanoparticles have the primary purpose of encapsulating the mRNA, protecting it from enzymatic degradation and assisting its penetration into the cells of the host organism, after intramuscular injection (Nance & Meier, 2021).

The messenger RNA (mRNA BNT162b2) of the medicinal product Comirnaty by Pfizer/BioNTech, which is expected to encode the viral Spike protein inside the host cell, is encapsulated in lipid nanoparticles formed by the two functional lipids ALC-0315 ((4-hydroxybutyl (azanediyl) bis (hexane-6,1-diyl) bis (2-hexyldecanoate)) and ALC-0159 (2 ([polyethylene glycol]-2000)-N,N-ditetradecylacetamide), and the two structural lipids DSPC (1,2-Distearoyl-snglycero-3-phosphocholine) and cholesterol.

In this narrative review, the purpose is to provide a detailed and documented account of the currently existing scientific evidences proving the toxicity and hazardousness of cationic lipid nanomaterials contained in mRNA vaccines, with particular attention to Comirnaty by Pfizer/BioNTech, and the serious proven contradictions, omissions and non-compliances by both the manufacturers and the regulatory bodies responsible for the scientific evaluation, supervision and safety monitoring of medicinal products.

REGULATORY NON-COMPLIANCES AND ABSENCE OF TOXICOLOGICAL STUDIES

ALC-0315 and ALC-0159 are classified by EMA as *novel excipients*, *never previously used in a medicinal product in Europe* and *not registered in the EU Pharmacopoeia* (EMA/707383, p. 23).

Of the two, the most important functional lipid is ALC-0315, instrumental to the formation of spheroidal lipid nanoparticles. ALC-0315 is an ionizable cationic amino-lipid consisting of a tertiary amine with a hydroxy-butyl and two exilic groups esterified with 2-hexyldecanoic acid (Segalla, 2023).

Figure 2. Molecular structure of cationic lipid ALC-0315.

of *cationic nanoparticles*, i.e. having a predominant positive surface charge. This positive charge is critical as it is what allows the formation of nano-complexes with negatively charged genetic materials such as mRNA (Figure 2).

Experimental data, however, have shown that cytotoxic and genotoxic effects are enhanced if nanoparticles have a positive charge (Kanasty et al., 2012; Fröhlich, 2012; Barone et al., 2017). As admitted even by BioNTech (co-owner, together with Pfizer, of the Comirnaty vaccine) in its patent *RNA Formulation for Immunotherapy* dated November 26, 2019, the *elevated toxicity* attributed to *positively charged liposomes and lipoplexes* makes them problematic and unsuitable for use in pharmaceuticals. The reference is to formulations of RNA encapsulated in cationic lipid nanoparticles — i.e. very similar to those used in Comirnaty — and called, in this context, "lipoplexes":

> Unfortunately, for positively charged liposomes and lipoplexes elevated toxicity has been reported, which can be a problem for the application of such preparations as pharmaceutical products (patent US 10,485,884 B2)

Nevertheless, EMA, in its Assessment report dated 19 February 2021, surprisingly asserts:

> No genotoxicity nor carcinogenicity studies have been provided. The components of the vaccine formulation are lipids and RNA that are not expected to have genotoxic potential. (EMA/707383, 2021, p. 55)

> As per guidance, no genotoxicity nor carcinogenicity studies were performed. The components of the vaccine (lipids and mRNA) are not expected to have genotoxic potential. This is acceptable to the CHMP. [1] (EMA/707383, 2021, p. 56).

REACTIVE OXYGEN SPECIES (ROS) FORMATION AND LIPID NANOPARTICLE TOXICITY

In stark contrast to what EMA asserts, nanoparticles consisting of monovalent cationic lipids have been shown to be significantly efficient in inducing cell death through the production of *reactive oxygen species* (ROS) (Yun et al., 2016). There is overwhelming evidence that overproduction of ROS is the main cause of nanoparticle biotoxicity. By concentrating mainly in lysosomes, mitochondria, and the nucleus of the cell, and generating ROS at those sites, positively charged nanoparticles can cause devastating consequences. Numerous studies irrefutably confirm that nucleotides components

[1] CHMP: European Committee for Medicinal Products for Human Use.