Effect of LNPs on RBCs to render them dysfunctional - is obvious

No need to for spike (but spike ain't good)!

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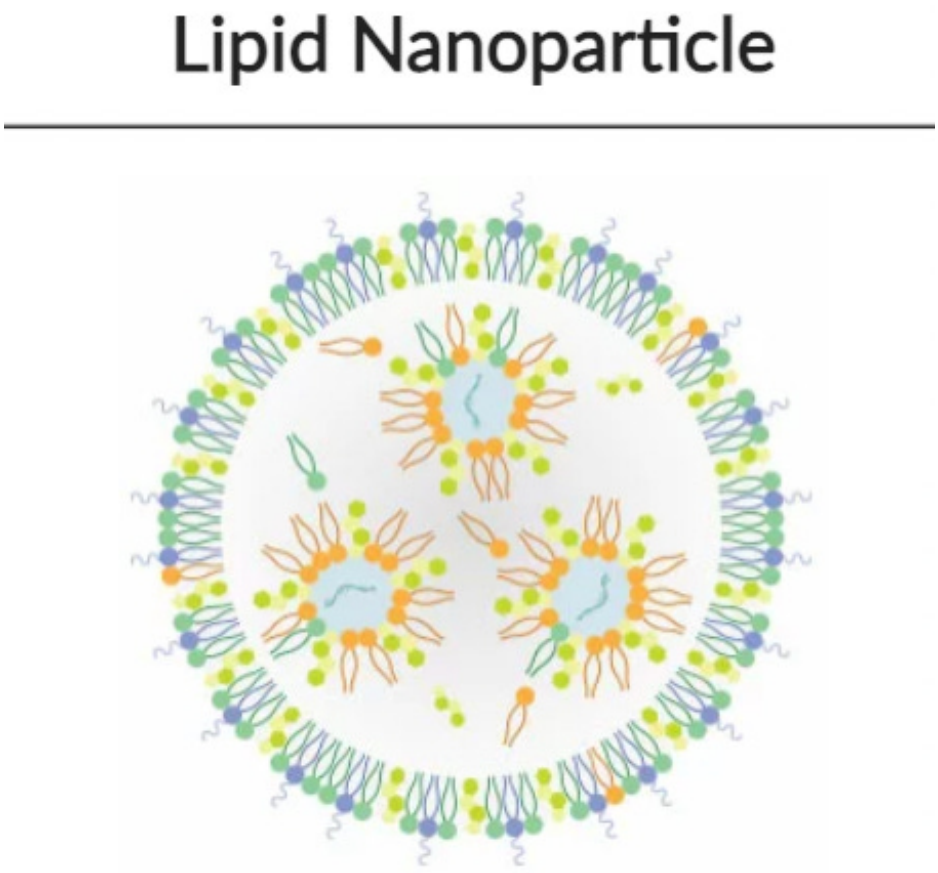
Dec 19

This Substack is going to be all about lipid nanoparticles (LNPs). Some history and some present.

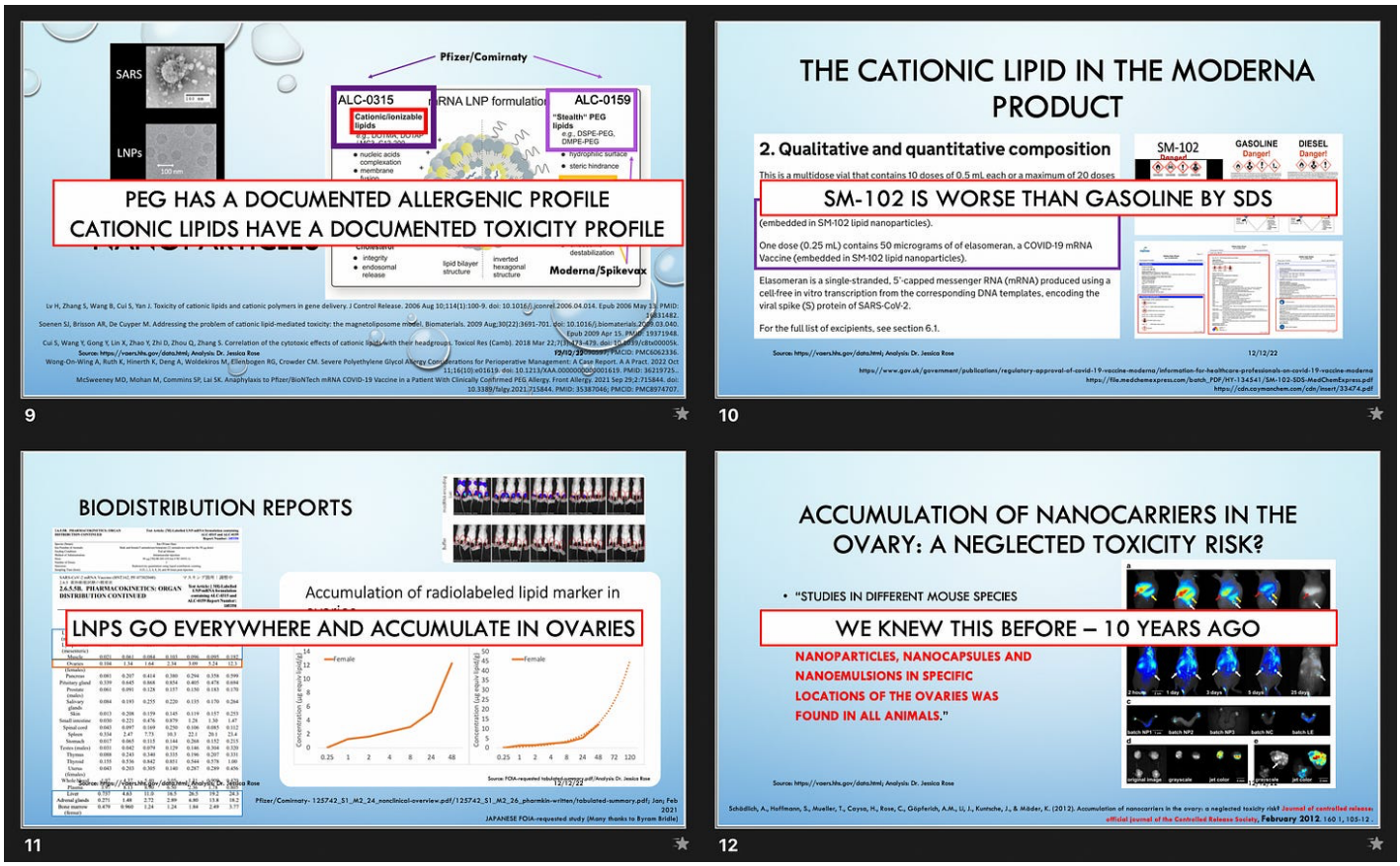


https://www.caymanchem.com/news/intro-to-lipid-nanoparticle-formulation.

Before I begin, a huge call out to my dear friend Ryan Cole and Del Bigtree and crew for producing this video. It has amazing evidence-based imagery and as usual, Ryan does a bloody incredible job explaining the very difficult. But before I go the present, let's delve into the past.

The LNPs used in the Pfizer and Moderna formulations are a composite of four different lipids (fats): cationic lipids, polyethylene glycol, phospholipids and cholesterol. The latter two are for structural integrity, PEG is for optimizing distribution and stealth qualities *in vivo*, and the cationic lipids (+) are to hold the mRNA (-) 'in place'.

And what is their historical success story you ask? Well, whenever people tried to use them in the context of injecting them into animals or other people, things went 'awry'. Toxicity issues, you see. And the LNPs always seemed to accumulate in the liver. Hmm. Funny that. Where did I hear about LNP accumulation issues before?



The LNPs used in the COVID-19 injectable products owe their existence to liposomes. Liposomes are artificial bi-layer structures with hydrophobic membranes that can be used as delivery vehicles for drugs. The LNPs are unique, however, in a number of ways, but most relevantly in the realm of toxicity to humans due to the incorporation of cationic lipids. The phospholipids and cholesterol are no big deal.

Table 1: *Comparison of LNPs to other LBDD systems*

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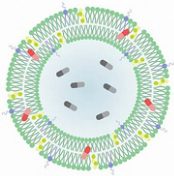
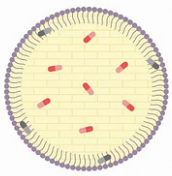
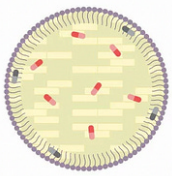
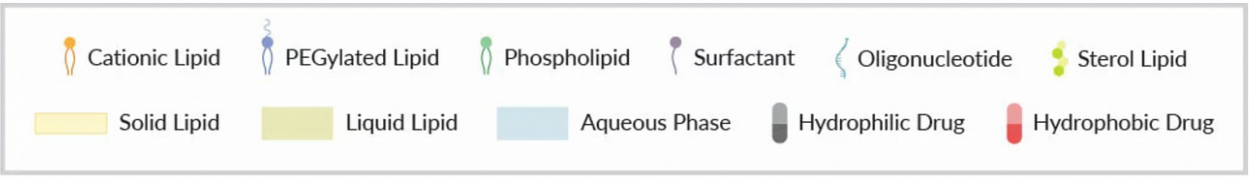
	Lipid Nanoparticle	Liposome	Solid Lipid Nanoparticle	Nanostructured Lipid Carrier
				
Lipid Shell	Monolayer	Bilayer	Surfactant	Surfactant
Internal Core	Reverse micelles	Aqueous	Solid lipids	Solid and liquid lipids
Cargo	Oligonucleotides	Hydrophobic and/or hydrophilic small molecules	Hydrophobic and/or hydrophilic small molecules	Hydrophobic and/or hydrophilic small molecules
Size	~20-100 nm	~50-1,000 nm	~40-1,000 nm	~40-1,000 nm



https://www.caymanchem.com/news/intro-to-lipid-nanoparticle-formulation

Cationic lipids themselves are terribly toxic. If only there was a way to mitigate this toxicity. Well, apparently, some genius found a way. Around the late 1990s, an idea to ensure that the cationic lipids were charged only under certain conditions (like acidic pH conditions - like in endosomes) emerged that seemed to change the entire safety profile LNP milieu. This would mean that the cationic lipids would not be charged in the blood since the blood has neutral pH (7.35 to 7.45). [1]

So, advancing to now, the story goes that Moderna had some lab rats (not actual rats, people) make 100s of different cationic lipids and tried multitudes of different lipid mixes to find the perfect little LNP that fit just right. The Goldilocks of the Moderna LNP world turned out to be SM-102: a highly toxic cationic lipid with a Safety Data Sheet safety profile worse than gasoline from a health standpoint. But hey, whatever works, right? The mRNA liked it, and they could swap out different mRNAs, so it's all good right?

Question, does SM-102 get ionized only at low pH?

Apparently, yes.

> Ionizable lipids like SM-102 hold a neutral charge at physiological pH but are

> positively charged within the nanoparticle (the amine group is protonated to form an ammonium cation). This allows them to bind to the negatively charged backbone of mRNA. [2]

Ok, let's take them at their lab word. So cationic lipids were looking "better". But what about PEG? Ah PEG, you allergen. PEG is important in LNP technology because it helps in solving LNP size issues, preventing LNPs from sticking together and making the LNPs stealthy once in an animal or a person. Kind of like hide and seek; where the PEG is the rock that the bureaucrats defending the universal safety of these products are hiding under. I guess that would make the bureaucrats the junk inside the LNP. Sounds about right. By the way, PEG-induced anaphylaxis from vaccines is not a myth. Anaphylaxis has to do with mast cell (and basophil) degranulation of histamine induced by binding of IgE receptors by IgEs.

Question: I wonder if the differences between the lab and clinical versions of the LNPs have actually been properly addressed? One *has* to wonder in the face of the enormous number of reports of adverse events in the context of the COVID-19 injectable products.

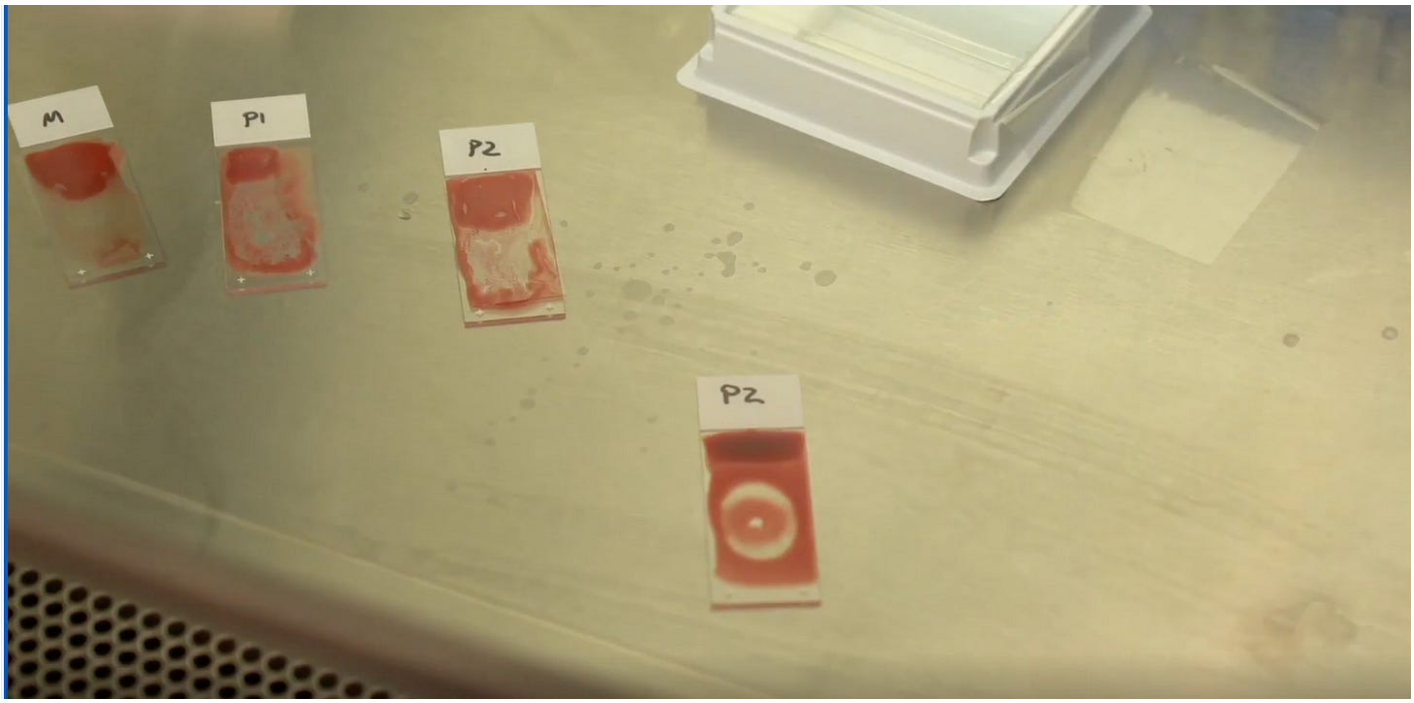
LNPs get taken up by cells and stuffed into vacuoles called endosomes (well, this is the proposed mechanism of action) where, due to the acidic pH inside the endosome, the magical cationic lipids get positively charged due to their ionizability, which is thought to change the shape of the nanoparticle itself to allow it to escape the endosome to release its fancy payload. Fun! But I still don't but that the safety profile issues were solved.

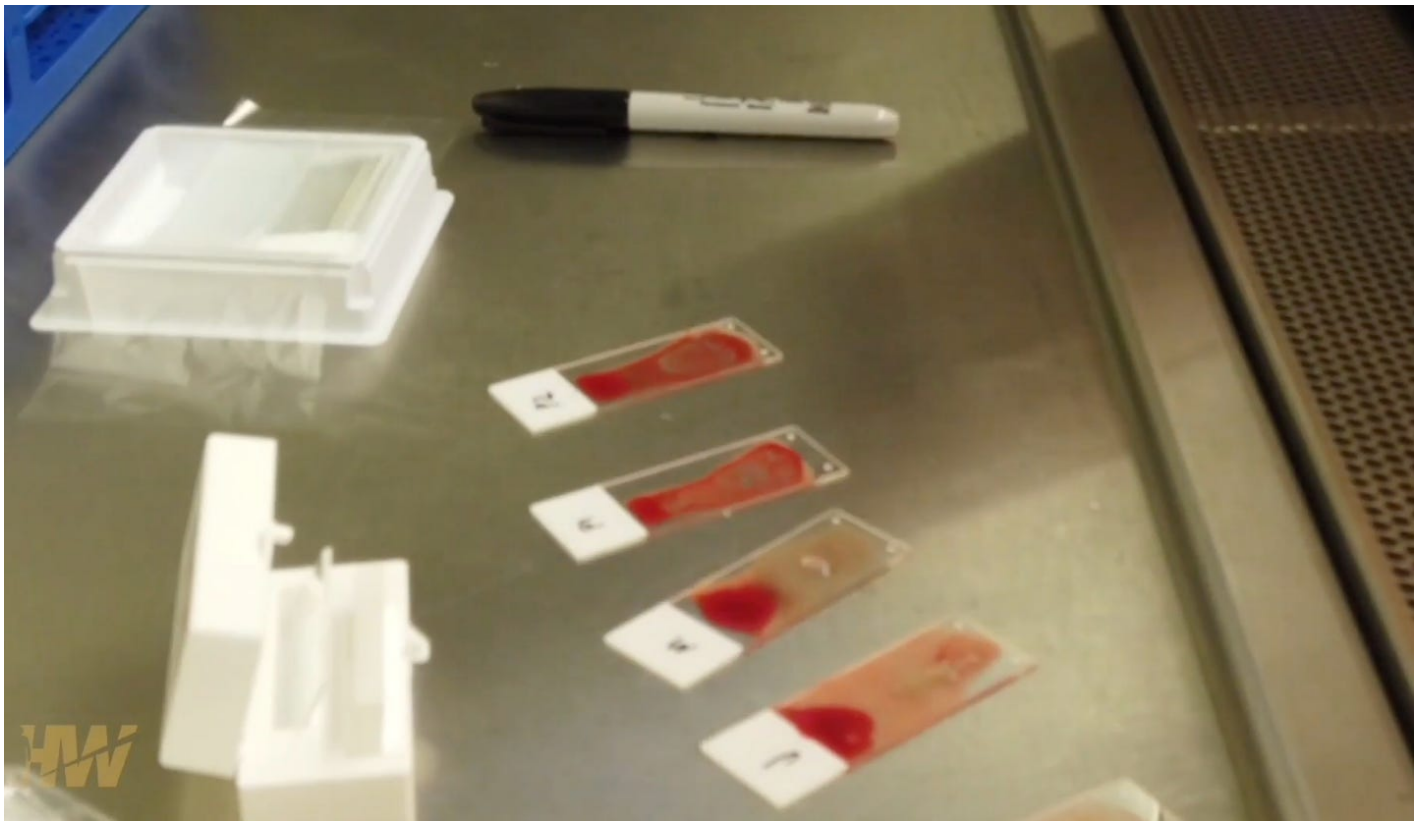
Now onto the juicy stuff. Ryan Cole did an awesome real-time demonstration in his lab about a week ago where he took fresh blood samples (from a 'Tree') and added single drops of Pfizer, Moderna and Janssen COVID-19 injectable products to them - proper biohazard precautions were taken and samples were mounted on microscope slides. Before he even got to his microscope to examine any potential microscopic effects, visible effects (with the naked eye) were incredibly obvious, and quite alarming. It almost looked like oil dispersing water. Hmm. I wonder if that wasn't a part of it. [High concentration] lipids in solution + isotonic blood? Maybe.

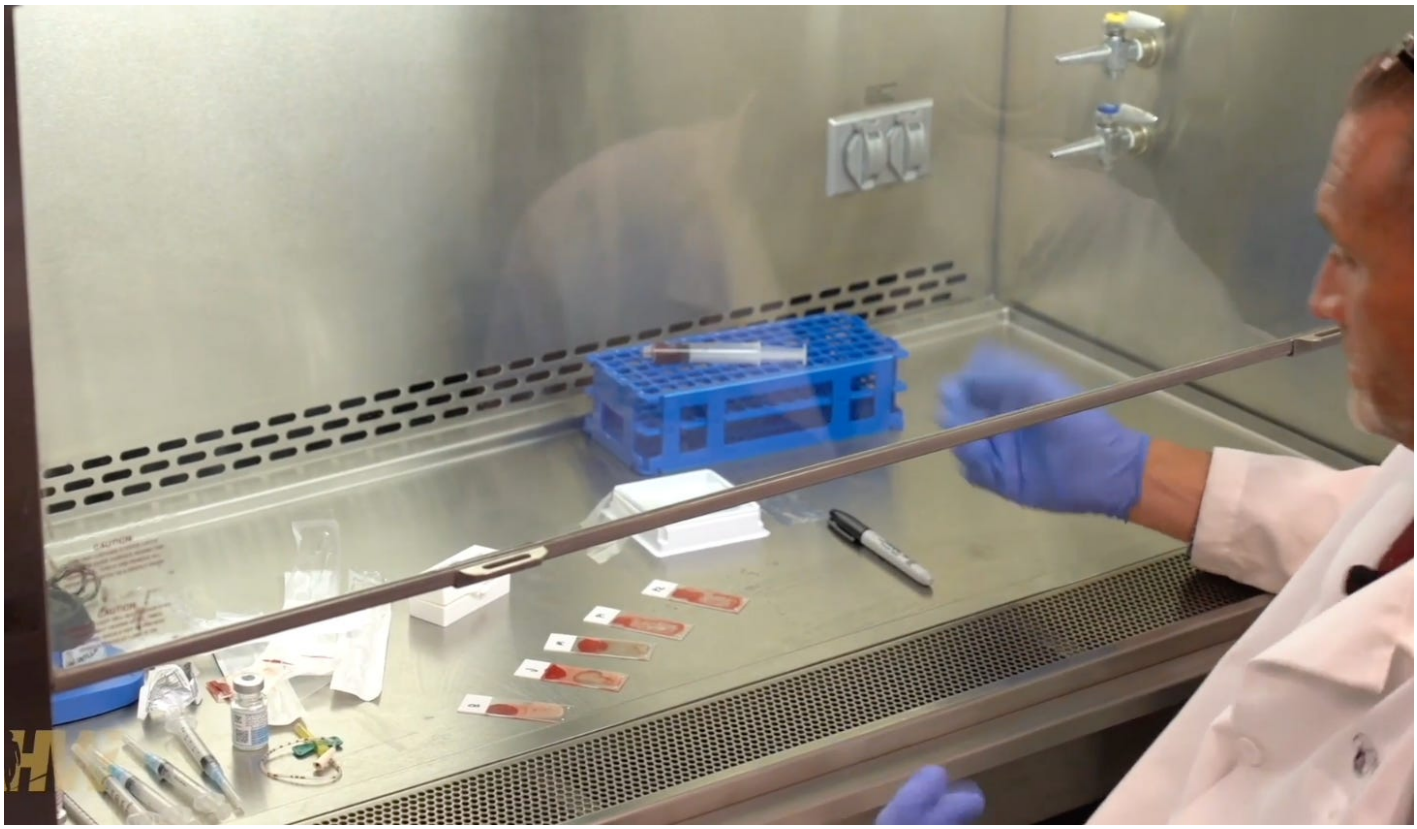
The most dramatic effects were seen for the Pfizer product. The 'J's, 'M's and 'P's

labeled on the microscope slides represent the Janssen, Moderna and the Pfizer products mixed with the blood samples, respectively. Check out the second Pfizer (P2) drop effects. What on earth? Looks like a target rash from Lyme.

Again, thank you so much to Ryan and Del (The Highwire) for these images.

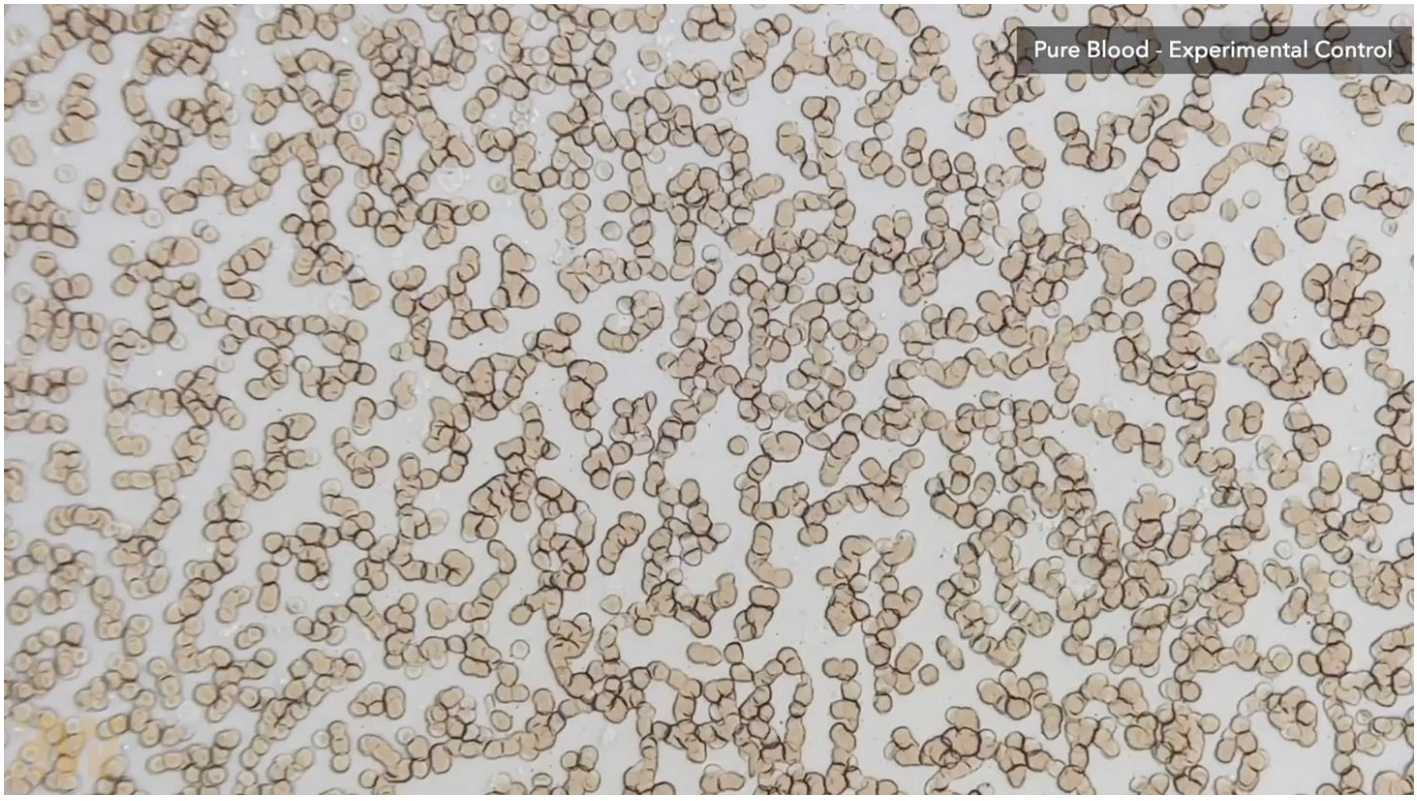




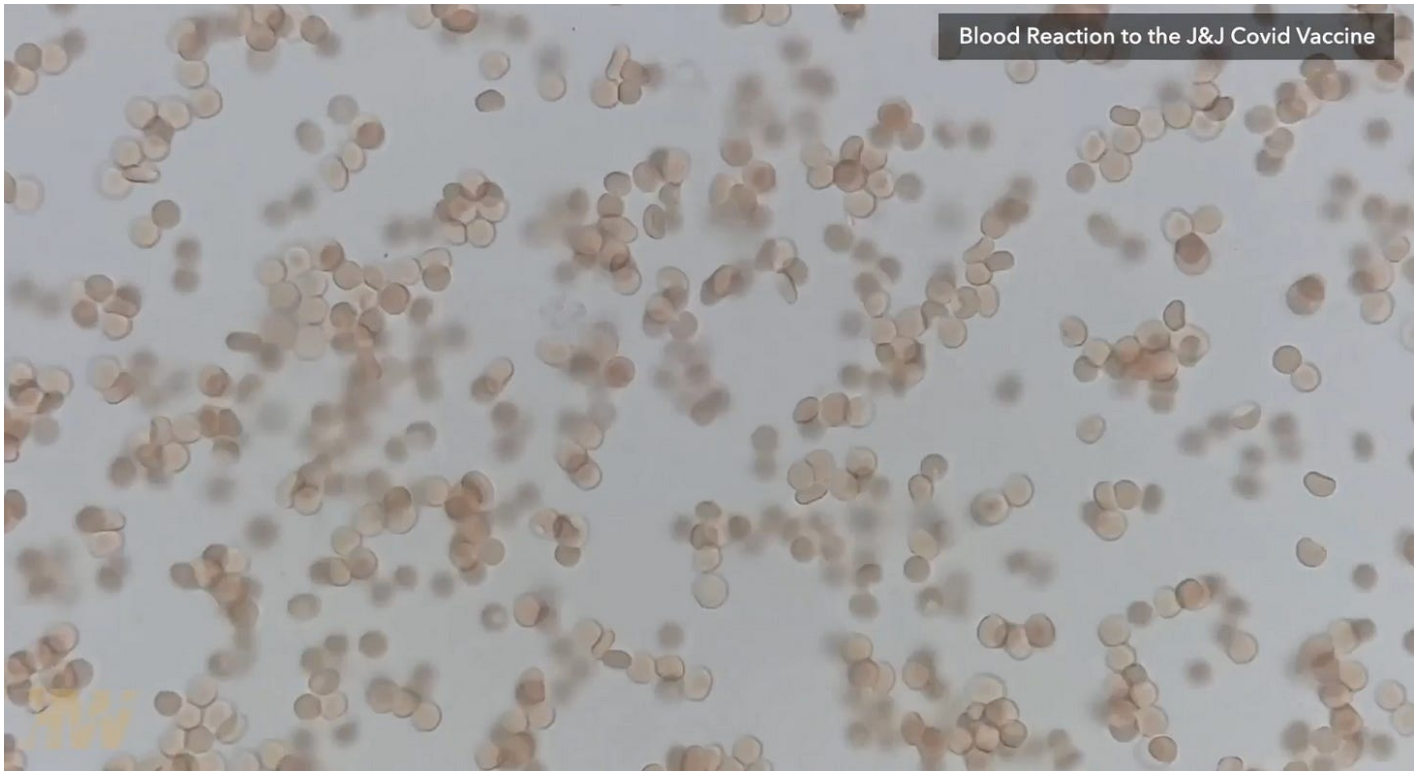


Screenshots from https://thehighwire.com/videos/the-highwires-lab-investigation-of-covid-vaccines/

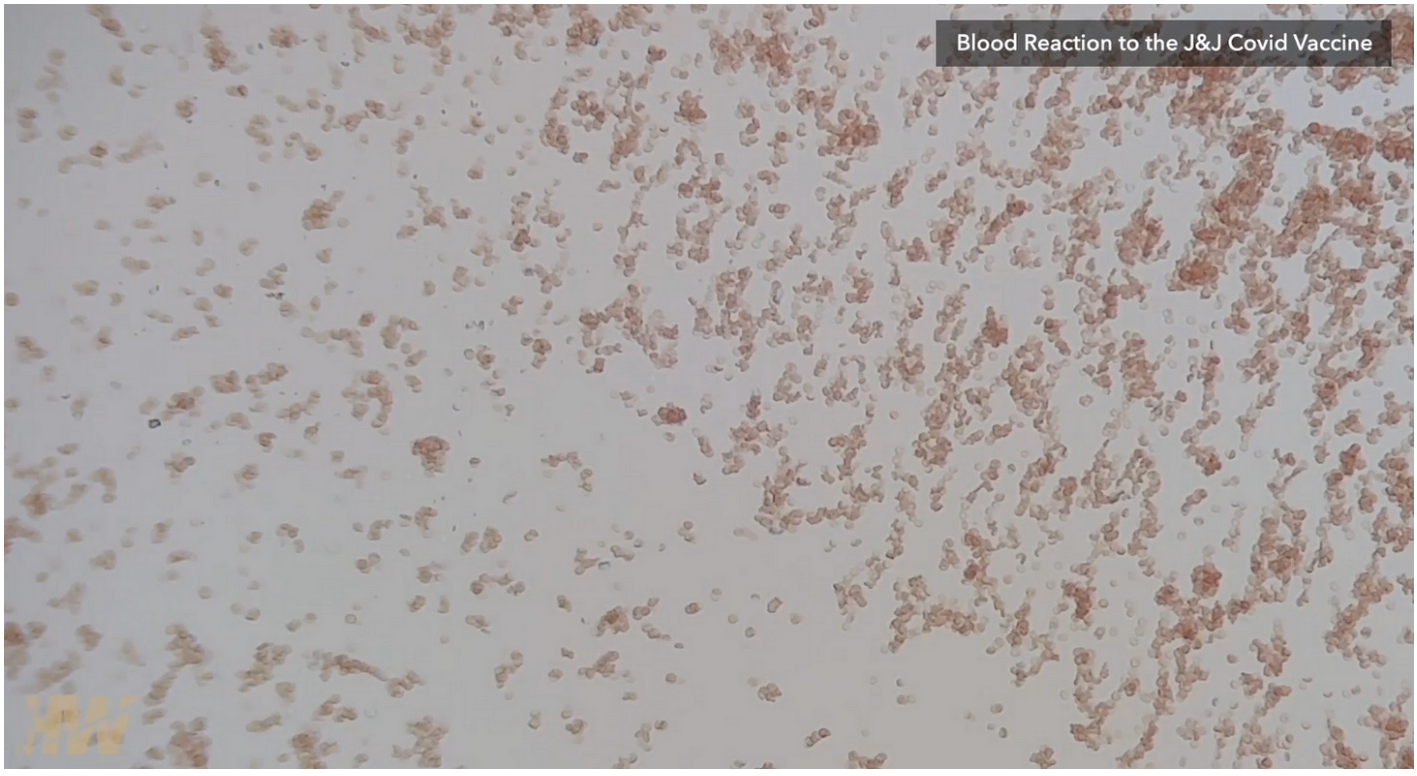
So what did the microscope show?



Untreated blood - normal. https://thehighwire.com/videos/the-highwires-lab-investigation-of-covid-vaccines/



Osmotic shift (this happens when hypotonic solutions are added to blood) causing the RBCs to swell. This should not happen because the shots are meant to be isotonic. https://thehighwire.com/videos/the-highwires-lab-investigation-of-covid-vaccines/



Destruction and clumping of RBCs. https://thehighwire.com/videos/the-

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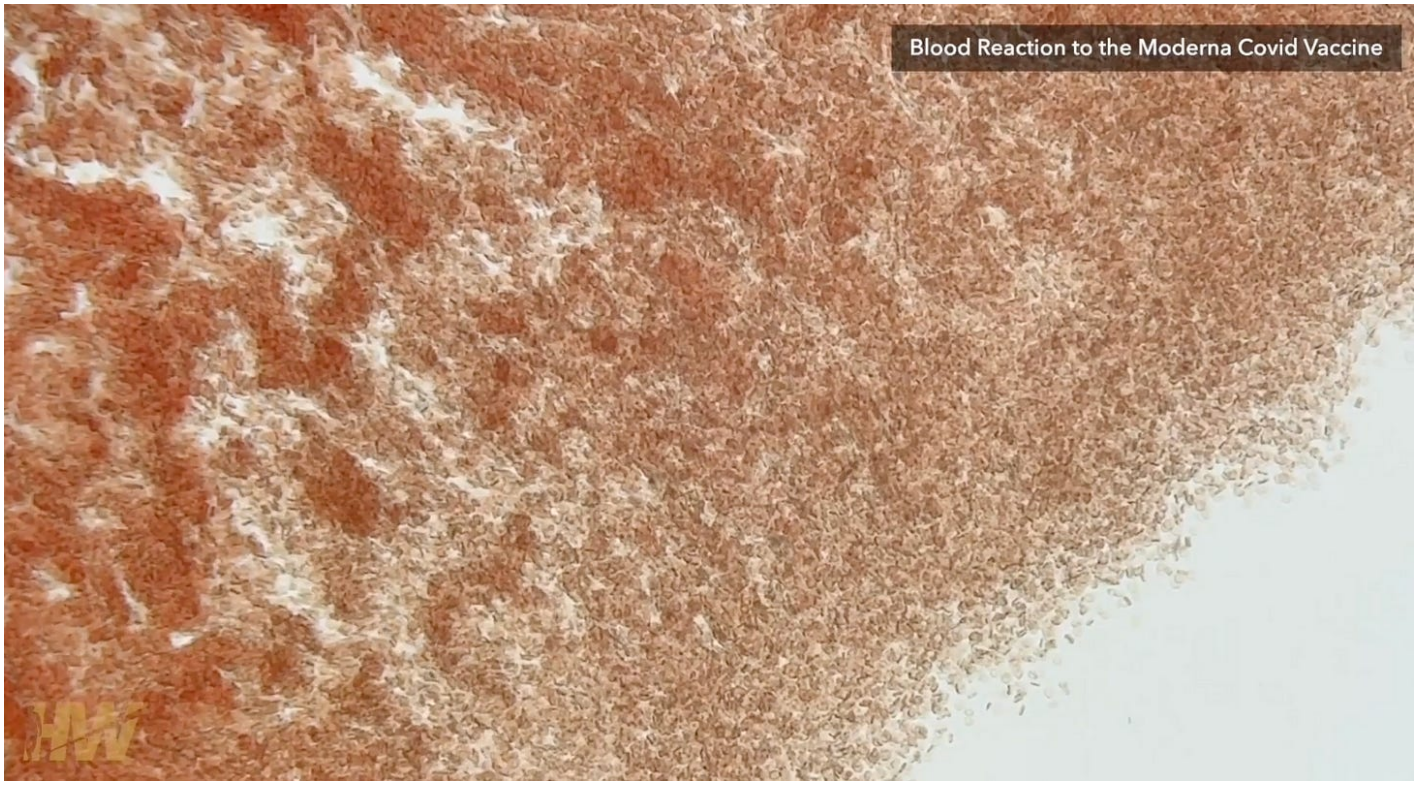
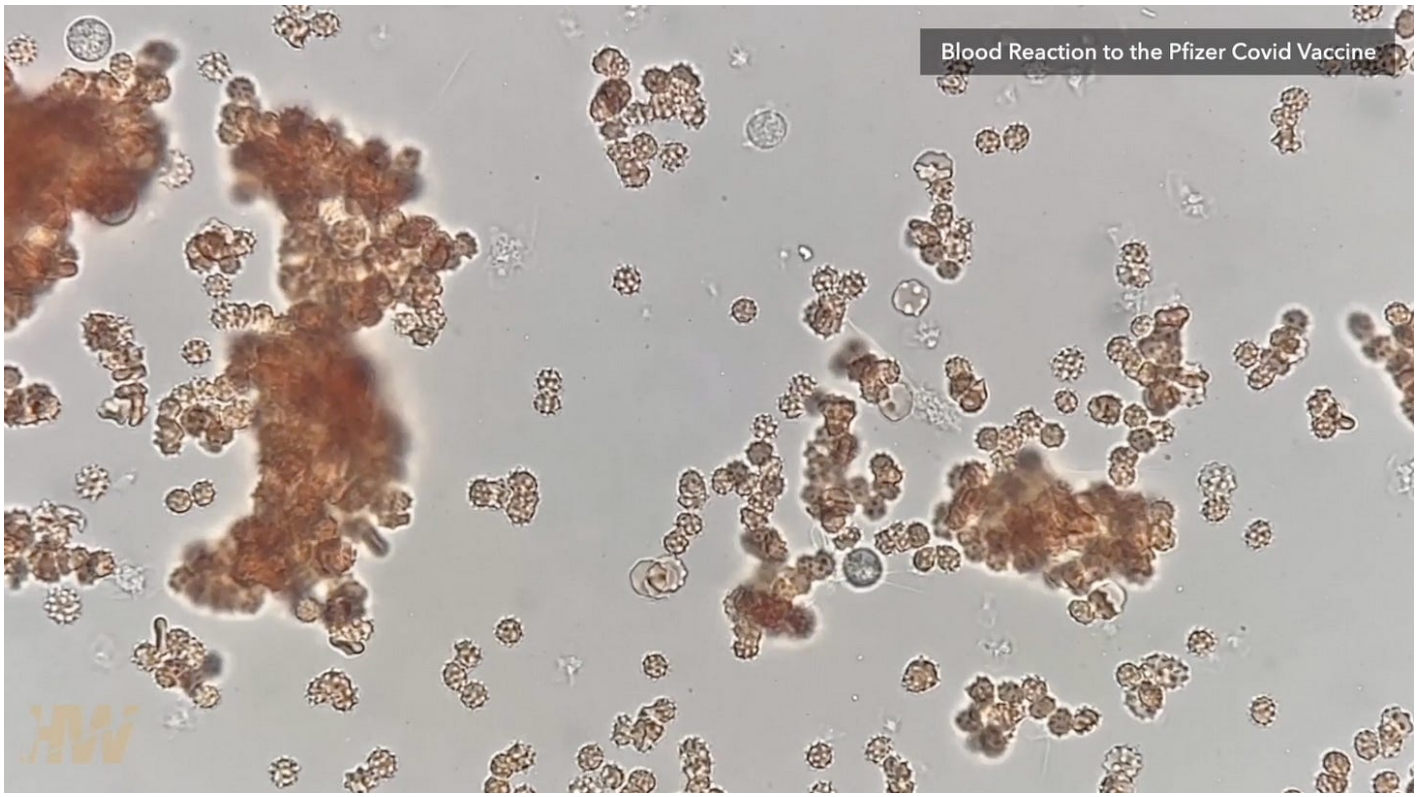


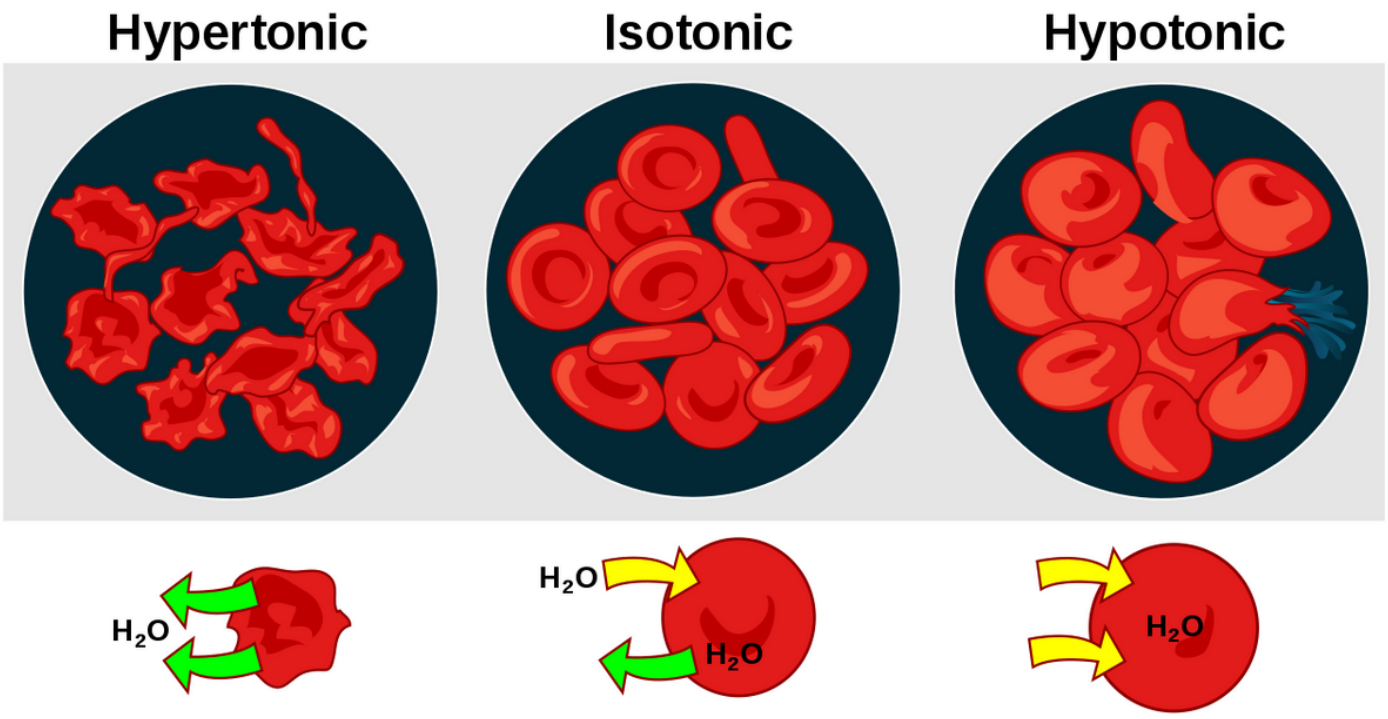
Bleaching and destruction of RBCs. https://thehighwire.com/videos/the-highwires-lab-investigation-of-covid-vaccines/



Those spikey cells are called echinocytes - involuted RBCs revealing surface proteins (the spikey bits are RBC-associated surface proteins) -

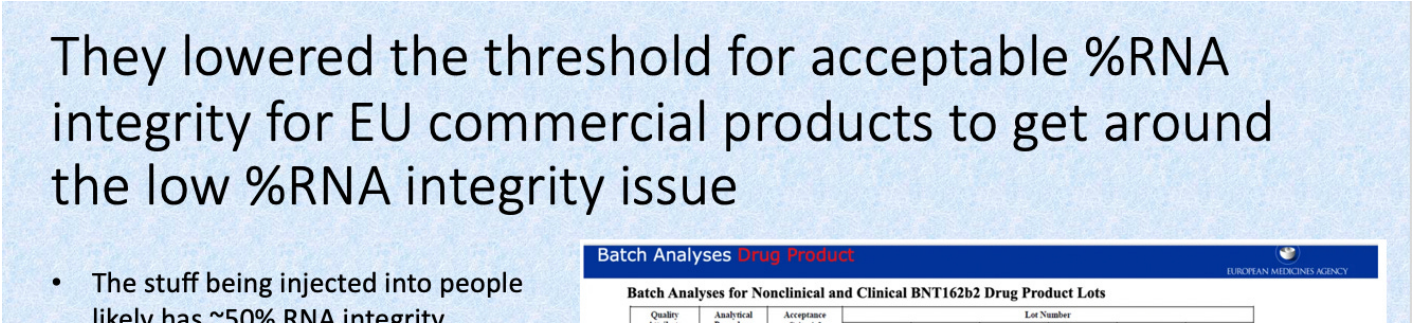
these RBCs are non-functional with regard to oxygen delivery. https://thehighwire.com/videos/the-highwires-lab-investigation-of-covid-vaccines/

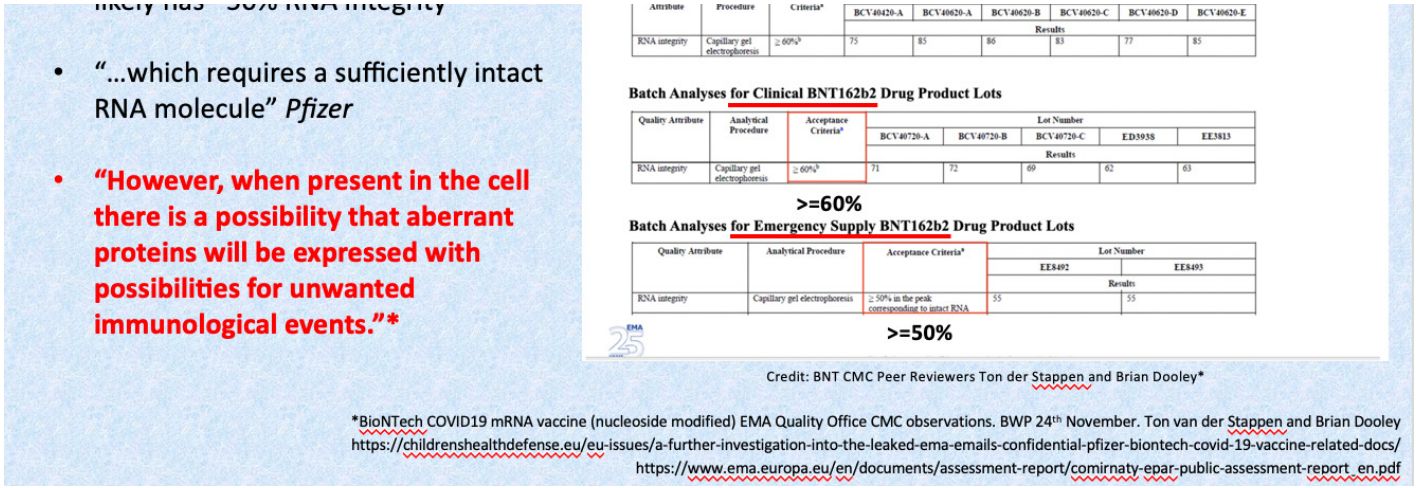
I find this absolutely fascinating and only yesterday!! I posted about tonicity effects on RBCs. It certainly appears from this one experiment that the Pfizer products are in a hypertonic solution, and that the Janssen products are in a hypotonic solution → they can't be isotonic! → why would the RBCs behave this way if they were? The Moderna product didn't show these two specific effects on RBCs, but it did seem to bleach and destroy them → no hemoglobin.



https://www.biologyonline.com/dictionary/hypotonic-solution

Side note so as not to forget why we're even talking about LNPs: What about the impurity issues of the junk inside the LNPs?





I think that we need to do more experiments like this and we need to do more autopsies. I also think that this simple, one-off experiment would have been enough to convince anyone who saw it **not** to inject themselves with any of these products. The effects on the RBCs in all three cases were devastating, and even more alarming, instantaneous! What acts this quickly?

Here's where my latest research on RBC zeta potential, low ionic strength solutions and PEG all come in really handy.

We get to ask some nifty questions now and make a stark observation: there is no spike involvement here. It is the LNPs themselves, the solution, or both, doing this harm.

Question 1: Is PEG inducing these changes? Unlikely. PEG is neutral.

Question 2: Are the cationic lipids inducing these changes? Possibly. But most of the cationic lipids are on the inside of the LNP.

Question 3: Is the Pfizer solution hypertonic? Looks like it! But how can this be? These products are meant to be resuspended in 0.9% saline, USP which is isotonic. [3]

Question 4: Is the Janssen solution hypotonic comprising a low ionic strength solution/saline (LISS) which in turn can reduce the zeta potential of RBCs? Looks like it! This product is not diluted prior to use and we don't really know its composition. [4] I find this extremely interesting since the Janssen products, by dose, are associated with the most adverse event reports in VAERS.

Question 5: Is the Moderna solution also not isotonic? It is also *not* diluted prior to injection, and we don't know what its composition is either. [5]

To end this article, here's a really cool video with a really cute guitar lick to accompany the majesty! Man, we are so cool!

Red blood cells under the microscope, hypo and hypertonic solutions

"There are no cationic lipids in nature." Pieter Cullis

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1 https://www.healthline.com/health/ph-of-blood#blood-p-h

2 https://en.wikipedia.org/wiki/SM-102

3 https://www.cdc.gov/vaccines/covid-19/info-by-product/pfizer/downloads/prep-and-admin-summary.pdf

4 https://www.cdc.gov/vaccines/covid-19/info-by-product/janssen/downloads/Janssen-Prep-and-Admin-Summary.pdf

5 https://www.cdc.gov/vaccines/covid-19/info-by-product/moderna/downloads/prep-and-admin-summary.pdf