



School of Medicine

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To my PKU Friends:

I have learned that some are concerned about whether the COVID-19 vaccine should be used in individuals with PKU because it 'contains' protein. I can unequivocally state that the vaccine is safe for anyone with PKU.

First, the COVID-19 vaccines being produced by Pfizer and Moderna do not even contain any protein! They are a very new kind of vaccine. They are made of RNA (ribonucleic acid) protected by a coat of lipid (naturally occurring fats). RNA is the building block our own cells use as the code for producing important proteins. The cells read RNA code and build new proteins using amino acids already in your body. After the vaccine is injected into muscle, the muscle cells take up the RNA-lipid particles and strip the lipid coating off. The RNA code then teaches the muscle cells to produce a single protein from the COVID-19 virus. The code provided is the code for the COVID-19 spike protein, one protein that is found on the outside of the COVID-19 virus particle. The muscle cells will transiently produce the COVID-19 spike protein (but not the whole virus) for just a few days until the RNA code spontaneously degrades. The spike protein is 'presented' to the outside of the muscle cell wall where the immune cells circulating in the blood can see it. Since it is a foreign protein not normally found in our bodies, the immune cells recognize the spike protein as foreign and start gathering everything needed to destroy the protein. A second injection of the vaccine three weeks later really solidifies the immune response and commits it to the memory of the immune system. Thereafter, if the individual encounters the actual COVID-19 virus which is covered in spike proteins, her immune system will immediately recognize the foreign spike proteins and reactivate to destroy the virus. I have reviewed the data provided by Pfizer to the FDA on the efficacy of their vaccine; it is remarkably effective.

Traditional vaccines, like the influenza vaccine, are based upon injecting the actual virus which has either been altered to not cause severe disease or has been killed. The vaccine still carries the viral proteins that the immune system will recognize as foreign. Traditional vaccines do contain protein, but the amount of protein injected is very small compared to the amount of protein consumed even in the most strict PKU diet.

To conclude, the Pfizer and Moderna COVID-19 vaccines do not contain any protein. They contain a code that will allow the transient production of a very small amount of a virus protein from amino acids already in the body. They will not affect phenylalanine metabolism. I urge you to discuss the COVID-19 vaccine with your medical advisor.

Sincerely,

A handwritten signature in black ink that reads "Cary O. Harding". The signature is fluid and cursive, with a large, sweeping flourish at the end.

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