Response from Dr Gaetan Burgio, ANU College of Health and Medicine:

I do not receive research funds from Pfizer. However we have had in the past some discussions with Pfizer as a RNA centre as Pfizer expressed interest in investing on RNA technology in Australia.

1. Firstly I do know the US based RNA scientists at Pfizer and I have never heard of Jordon Trishton Walker and this name never popped in a conversation. This person is certainly real and might be (likely not anymore if so) a Pfizer employee. Given his profile (urologist trainee) I would however seriously question his knowledge and his access to the information regarding the research project on RNA at Pfizer.
2. On the science itself. Jordon Trishton Walker's conflation of directed evolution with gain of function research is astonishing and to be frank gobsmacking for an allegedly R&D Pfizer senior executive.

   A directed evolution experiment consists in a process of selecting a protein for a specific function, For example to make the protein more or less active or to understand how a protein works for a specific function. Prof Frances Arnold was awarded a Nobel Prize in 2018 for developing the technique https://en.wikipedia.org/wiki/Frances_Arnold. This technique all happens in the laboratory (in-vitro) and importantly it doesn't involve a whole organism (no cells or animals), just the protein of interest. Directed evolution is notably a popular process in protein chemistry and used for research to understand why a protein does XYZ and for industrial manufacture of many applications, including everyday life applications such as plastic recycling by improving the performances of plastic enzyme eaters. Relevant to COVID, researchers have performed important experiments using directed evolution technique to for example determine how anti viral works on COVID.

   Gain of function GOF research is drastically different. It consists of using the entire organism (flu and SARS_Cov…) to deliberately increase its virulence by serially passaging the virus in living organisms (cells, mouse, rats…) aka in-vivo. The idea of this process is to make the virus more resistant to antiviral or more virulent. The key here is it involves a full organisms

   To recap, the key difference between directed evolution and GOF is directed evolution is all in-vitro experiment and consists on doing experiment on a single protein whereas GOF consists in performing in-vivo experiment on a whole organism to render it more virulent or so.

3. It would make sense to me that Pfizer would perform a directed evolution experiment on spike protein to understand how does it work and how resistance to antiviral emerge. In my view it would be important to inform future vaccine and drug design. As I mentioned before, some research groups have performed similar series of directed evolution experiments on the SARS-

Cov2 spike protein and have published on it to predict emerging COVID variant or so.