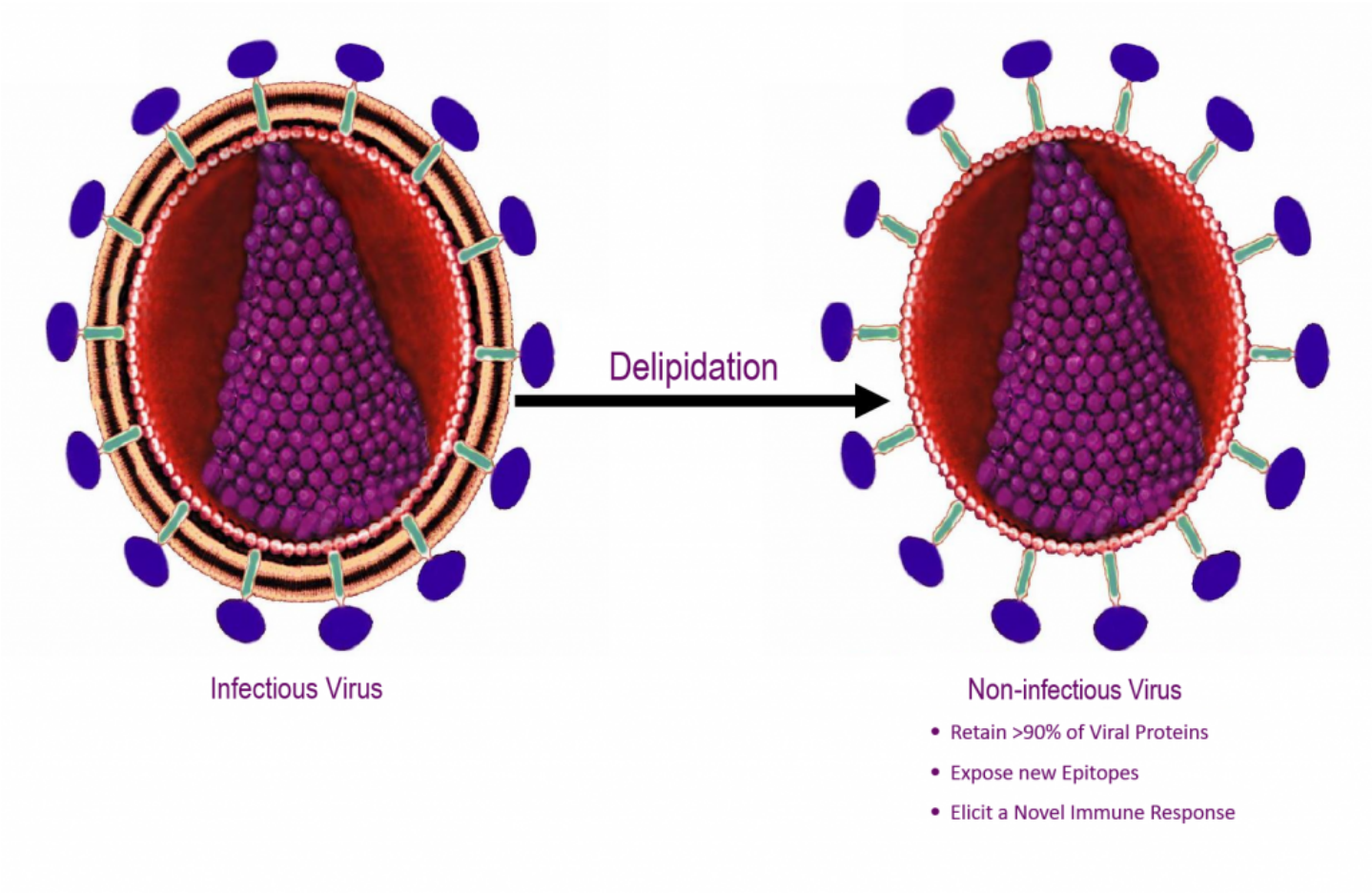
Defatting Covid-19 virus exposes hidden proteins allowing robust vaccines that also resist infection of mutated strains



Shefa, Vila, May 3, 2021 (Issuewire.com**)** - Viruses, including SARS-CoV-2 coronavirus that causes Covid-19, are microscopic parasites that constantly replicate using its host facilities. Since viruses are non-metabolic, they only reproduce within living host cells. Covid-19 is an enveloped virus that is surrounded by a lipid (fat) bilayer that supports its structural foundation. The virus codes the proteins of the viral particle while the host cell supplies the lipids and carbohydrates. This is how the viral particle confuses the host's immune system by presenting it with an antigenic complex that contains components of the host's tissues and is perceived by the host's immune system as partly "self" and partly "foreign". Consequently, the immune system is forced to produce the "compromised" outcomes, ineffective antibodies to unexposed antigens "hidden" within the viral particle.

On the one hand, the virus must produce a protein that is on its outer surface, the Spike protein, that interacts and infects the host cell. On the other hand, this can also be considered a detriment to the virus, because this protein is exposed to the immune system of the host. Current vaccines for Covid-19 are MONOVALENT and produce antibodies against this single Spike protein.

Every time a virus replicates there is a risk that a mutation can occur.

In the case of the Covid-19 pandemic, over 800,000 new infections are reported worldwide per day.

With such an incidence, it is not surprising that over the last two years innumerable trillions of viral replications have occurred. This translates to considerable mutations of the Covid-19 virus that can be inconsequential or have dire consequences.

New "variants of concern" are emerging and spreading worldwide. It is highly likely that there will be more of these variants with hitherto unknown sequelae of the infection before the wild-type Covid-19 pandemic is over.

The quality of the vaccine determines the outcome of its protection. Current vaccines, although remarkable, are MONOVALENT and are based on antibodies raised against one protein (the spike protein) on the virus. However, the Covid-19 virus is much more complicated than just the spike protein. There are in fact four different types of proteins that form the overall structure of the virus particle: spike (S), envelope (E), membrane (M), and nucleocapsid (N) proteins. Other than the spike protein, the other proteins are "hidden" embedded within the virus.

An article entitled: "New and Newer Vaccines for SARS-CoV-2 Variants. Are the Major Vaccine Developers on the Right Track, Or Is Delipidation the Answer?" by Professorial Research Fellow Bill Cham in the scientific journal 'Advances in Infectious Diseases' published this week, describes a unique procedure that releases these hidden proteins without damaging them by delipidating (defatting) the virus.

The crucial part was to obtain native undamaged proteins, as, an optimum antibody recognizes an antigen of a specific protein that must be in the undamaged "correct" functional conformation and orientation.

This has resulted in creating POLYVALENT vaccines that produce humoral antibodies and T cells that target all viral proteins (exposed and hidden) as shown in studies completed at the Universities of Queensland and Sydney together with the Elizabeth Macarthur Agricultural Institute against Hepatitis virus, Pestivirus, HIV and SIV.

Because these vaccines are POLYVALENT, they are more robust giving broad protection, and are considerably less likely to be affected by mutated variants. These vaccines overcome the necessity for the expensive cat and mouse game currently being applied with MONOVALENT vaccines that require, for example, yearly boosters for the flu vaccine.

Urgent attention is warranted to this new approach in vaccine development.

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