Millennium TBI Network

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The Emerging Science of Coronavirus Defense

The Covid-19 Paradox

By

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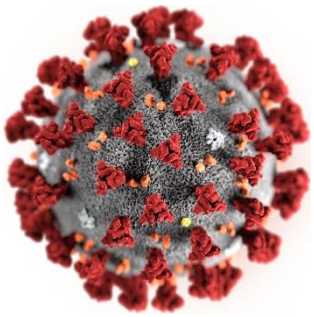

The sudden appearance in China of the novel coronavirus, now identified as Covid-19, has rapidly spread around the globe with a relatively small but rising death toll. Death from the infection is due to SARS, a severe acute respiratory syndrome, that effects the lungs ability to transport oxygen to our red blood cells. Contrasted to the annual fatalities from Influenza A, Covid-19 has presently paled in the total number of deaths in comparison.

We would like to believe that this is due to the rapid response by our government in identifying the location of origin, Wuhan China, but has not found Patient Zero (the index case or the first person to acquire the illness) which would help identified the originating source of the virus. Speculation exists that claim the Covid-19 virus was manufactured or that the virus jumped from animal to man, these are just that – speculations.

In the recent past, an epidemic with SARS (a coronavirus infection) originated in Guangdong China in 2003, resulted in more than 8000 cases in 26 countries with 774 deaths. Since then, a small number of cases have occurred as a result of laboratory accidents or, possibly, through animal-to-human transmission according to the WHO.[1]

Now, we know what we are dealing with a virus, and the question becomes how best to protect ourselves from becoming infected with the virus. With that question asked, we need to take a short course in virology to understand how we might be able to protect ourselves and our loved ones.

How Viruses infect our cells

Viruses are a unique adversary to human wellness since they need to utilize our own cells' systems to replicate their genome. Once the virus injects its RNA (ribose nucleic acid) into our cell, it utilizes our protein manufacturing centers called ribosomes to recreate and multiply this protein which is called Replicase (RNA dependent RNA polymerase)[8]. It is Replicase that directs our cells to continue to manufacture the viral genome and structural proteins[2]. The coronavirus replication cycle is divided into several steps: attachment and entry, translation of viral replicase, genome transcription and replication, translation of structural proteins, and virion assembly and release[9].

Therefore, the question is how best to stop this process? Enter zinc, which has been found to inhibit the production of Replicase[3]. Without replicase there cannot be replication of the viral genome, but there is a problem with getting zinc into the cell. Zinc is a mineral that has an electric charge making it an ion; an atom or molecule with a net electric charge; zinc has a plus 2 charge (ZN^{+2}). Due to this electric charge, zinc cannot easily cross the cell membrane and enter the cell to stop the replicase production.

The Ionophore Carrier

The membranous outer surface of our cells is a bi-lipid layer that controls the entrance as well as exit of compounds in and out of our cells. Some compounds pass easily into the cell while others cannot transverse the membrane due to their size or an electrical charge. The presence of an electric charge impedes their passage through the bi-lipid cell membrane and mandates that they be chaperoned or carried into the cell by a substance called an Ionophore.

Ionophore means "ion carrier" and represents a diverse group of compounds that catalyze ion transport across hydrophobic membranes such as those making up our cells. These carrier ionophores may be proteins or other molecules, pharmaceuticals or nutraceuticals.

In order to get these compounds from the outside of the cell to the inside, a virtual transmembrane channel is needed.[4] These highly selective transmembrane passageways allow for the transport of charged particles, ions, into the cell, but they need a carrier or transport molecule to facilitate their passage. Without a transporter, the product to be delivered is stuck on the outside of the cell membrane never to gain entrance.

Fortunately, zinc has been found to be transported into the cell by a number of medications and natural products or nutraceuticals. Presently, the anti-malarial medication Chloroquine, has been found to be an ionophoric transporter of zinc. In the coming days more information will come out about this medication with potential side-effects. In the nutraceutical realm both Quercetin and Epigallocatechin gallate (**EGCG**) are capable of ionotropic transport of zinc[5] into the cell without toxic side-effects.

The three types of **zinc** supplements most easily **absorbed** by the body which are **zinc** picolinate, **zinc** acetate, and **zinc** citrate. Once the zinc is absorbed through the intestinal lining into the blood stream it becomes the responsibility of either the EGCG or Quercetin[6] to act as the ionophore transporter to get it into the cell. Once Zinc is in the cell it can address the disruption of the viral replication mechanism by inhibiting replicase's production.

Based upon this science, it appears if the combination of Quercetin[7], EGCG, and Zinc are taken pre-infection the cells are prepared for the attempted invasion of the viral genetic material into our cells. If you have not prepared your cells, the only benefits will be in curtailing the further replication of the viral particles if the virus has already gained a foothold in your cells and is using your ribosomal-protein synthesis mechanism to make more virus. As always, an ounce of prevention goes a long way.

Watch the video under reference #2 on page 3.

Click to References.

Suggested order of viewing: #2 and #3 to learn about viral replication, Zinc, and ionophore transport. Then #5 to understand how both safe and beneficial the nutraceuticals Quercetin and EGCG are as Ionophore carriers followed with # 6 and #7 the existence of science since 2003 about the benefits of Quercetin on stopping the cellular infection by Coronavirus and Ebola. To amplify the information then go to #4, #8, and the intense #9.

Over-view
I believe that the point of convergence, for all this information, will be that Quercetin acts as an ionophore to carry zinc into the cell to inhibit viral genomic replication.

1. World Health Organizations, SARS 2002. https://www.who.int/ith/diseases/sars/en/
2. Dr. Roger Seheult explains how the Coronavirus infects our cells https://youtu.be/U7F1cnWup9M
3. Zn^{2+} Inhibits Coronavirus and Arterivirus RNA Polymerase Activity In Vitro and Zinc Ionophores Block the Replication of These Viruses in Cell Culture https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2973827/pdf/ppat.1001176.pdf
4. Zinc Salts Block Hepatitis E Virus Replication by Inhibiting the Activity of Viral RNA-Dependent RNA Polymerase https://jvi.asm.org/content/jvi/91/21/e00754-17.full.pdf
5. Zinc Ionophore Activity of Quercetin and Epigallocatechin-gallate: From Hepa 1-6 Cells to a Liposome Model https://pubs.acs.org/doi/10.1021/jf5014633
6. Newspaper article: https://www.macleans.ca/news/canada/a-made-in-canada-solution-to-the-coronavirus-outbreak/
7. CBS NEWS Canada: Quercetin and Dr. Michel Chrétien's team at the Clinical Research Institute of Montreal https://www.youtube.com/watch?v=3cQ9FueRfTY
8. The Nonstructural Proteins Directing Coronavirus RNA Synthesis and Processing , E J Snijder, E Decroly , J Ziebuhr - Adv Virus Res, 96, 59-126 https://pubmed.ncbi.nlm.nih.gov/27712628/
9. Human Coronavirus: Host-Pathogen Interaction. To Sing Fung, Annua Rev Microbiology 2019. 73:529-57. https://www.annualreviews.org/doi/pdf/10.1146/annurev-micro-020518-115759

Comments:
Since 2001, the Millennium has used Zinc as an aromatase inhibitor in lieu of the poisonous anastrozole. The standard dosing of the Zinc Citrate was 60 – 90 mg a day. After reading about the Mitochondriogenic effects of Quercetin in 2006 we started adding 500mg twice a day to our professional athletes to improve their endurance and recovery. We also learned that Quercetin, a polyphenolic natural derivative, also modulates the inflammatory cytokines thereby decreasing inflammation. In 2019, we released Brain Care II, a liposomal product, to deliver 6 anti-inflammatory products into the body to address the neuroinflammation generated by traumatic and non-traumatic brain injuries in our veterans. This product contains both Quercetin and EGCG, both Ionophores.

What we have observed in our patient population, based upon their monthly program questionnaires (MPQs), is a reduction in the occurrence, intensity and duration of the common annual influenzas and colds. Coincidental or science? As you will read, Dr. Michel Chrétien's team has already shown with SARS (2003) and Ebola that Quercetin has altered the ability of these Viral Vectors to gain a foothold. Could it be that individuals with an optimal level of zinc who are also on Quercetin stand a better chance at defending their cells from the viral incursion? Only with further research will this be proven but the groundwork, as shared above, is already underway.

Expect to see a surge in reports about Chloroquine treatments and research in the coming hours, days and weeks.