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Subject: ZINC AND CORONAVIRUSES - A Preview on COVID-19 Protection

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ZINC AND CORONAVIRUSES

A PREVIEW ON COVID-19 PROTECTION

by tRB

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To those of you whom are Christians, we here at QMovement wish you a Peaceful and contemplative Palm Sunday. Although many, if not all, places of worship are temporarily closed, prayer ultimately takes part in the heart, manifests through conscience, ultimately outpouring onto the soul. So remember, a geographic location and brick-and-mortar setting are not required to pray. That being said, the staff and I believe that this upcoming Holy Week will be very special… Dark to Light.

I'm sure by now you've been hearing alot about Zinc, it's surely been in the news, often in the same very sentence as the words "hydroxychloroquine" and "azithromycin" (Z-pak). Well, there's a reason why this micro-nutrient has been in the limelight; it is TRULY THE KEY FACTOR in successful treatment and even

prevention of COVID-19, the novel coronavirus which causes SARS-COV2 (Severe Acute Respiratory Syndrome-Coronavirus 2).

Consider this a “teaser”, the first in a series specific to Zinc and why it is SO important to fighting this deadly virus. All of this has been meticulously planned: watching Dr. Buttar’s video and his discussion of the role of furin will come closely into play with all that we will be discussing below. Areas which will explore in upcoming newsletters are:

1) Why does the virus prey mostly on the elderly?
2) Why does the virus primarily choose men?
3) Why are victims of the virus mostly overweight? (moderate, severe and morbidly obese)
4) Why is high-blood pressure such a contributing factor to the severity of infection?
5) Why is there a link between NSAIDs (Non Steroidal Anti-Inflammatory Drugs) and acute respiratory distress syndrome with COVID-19 infection?
6) Why does being diabetic, especially if uncontrolled/unmanaged, significantly increase your chances of morbidity and mortality with this virus?
7) Why is Zinc, a “health food store supplement”, part of Dr. Vladimir Zelenko’s COVID-19 treatment protocol which has a 100% success rate??
8) What type/form of Zinc is best?
9) And lastly, what the hell is a Zinc ionophore, is it the same a Zinc chelate?

All these questions, and more, will be answered in this upcoming series. Answers will not be of opinion, but will be based in scientific fact, with actual peer-reviewed studies provided.

I have included a “teaser” study below demonstrating Zinc’s ability to inhibit a variety of virus including coronavirus. I know that unless one is a scientist, some of these studies can seem rather intimidating. That is NOT the reason why I have decided to provide them… it is to legitimize what is being said, as well as to provide actual data you can take to your doctor, or share with your friends, family and loved ones, and maybe even the neighbor you wish wasn’t your neighbor.

Lastly, YOU ARE ENCOURAGED TO PASS THIS EMAIL ON! FORWARD TO YOUR FRIENDS… GET THEM TO SUBSCRIBE! And please, don’t worry, we will never attempt to sell you anything… no discount codes, no promotional links. Only free information. We call it, "Logical Thinking is Intelligence Optimized."

Thank you and Be Well.

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“Free thinking. Intelligence optimized.”

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Zn^{2+} Inhibits Coronavirus and Arterivirus RNA Polymerase Activity *In Vitro* and Zinc Ionophores Block the Replication of These Viruses in Cell Culture

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Abstract

Increasing the intracellular Zn^{2+} concentration with zinc-ionophores like pyrithione (PT) can efficiently impair the replication of a variety of RNA viruses, including poliovirus and influenza virus. For some viruses this effect has been attributed to interference with viral polyprotein processing. In this study we demonstrate that the combination of Zn^{2+} and PT at low concentrations (2 μM Zn^{2+} and 2 μM PT) inhibits the replication of SARS-coronavirus (SARS-CoV) and equine arteritis virus (EAV) in cell culture. The RNA synthesis of these two distantly related nidoviruses is catalyzed by an RNA-dependent RNA polymerase (RdRp), which is the core enzyme of their multiprotein replication and transcription complex (RTC). Using an activity assay for RTCs isolated from cells infected with SARS-CoV or EAV—thus eliminating the need for PT to transport Zn^{2+} across the plasma membrane—we show that Zn^{2+} efficiently inhibits the RNA-synthesizing activity of the RTCs of both viruses. Enzymatic studies using recombinant RdRps (SARS-CoV nsp12 and EAV nsp9) purified from *E. coli* subsequently revealed that Zn^{2+} directly inhibited the *in vitro* activity of both nidovirus polymerases. More specifically, Zn^{2+} was found to block the initiation step of EAV RNA synthesis, whereas in the case of the SARS-CoV RdRp elongation was inhibited and template binding reduced. By chelating Zn^{2+} with MgEDTA, the inhibitory effect of the divalent cation could be reversed, which provides a novel experimental tool for *in vitro* studies of the molecular details of nidovirus replication and transcription.

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Introduction

Zinc ions are involved in many different cellular processes and have proven crucial for the proper folding and activity of various cellular enzymes and transcription factors. Zn^{2+} is probably an important cofactor for numerous viral proteins as well. Nevertheless, the intracellular concentration of free Zn^{2+} is maintained at a relatively low level by metallothioneins, likely due to the fact that Zn^{2+} can serve as intracellular second messenger and may trigger apoptosis or a decrease in protein synthesis at elevated concentrations [1,2,3]. Interestingly, in cell culture studies, high Zn^{2+} concentrations and the addition of compounds that stimulate cellular import of Zn^{2+}, such as hinokitol (HK), pyrrolidine dithiocarbamate (PDTC) and pyrithione (PT), were found to inhibit the replication of various RNA viruses, including influenza virus [4], respiratory syncytial virus [5] and several picornaviruses [6,7,8,9,10,11]. Although these previous studies provided limited mechanistic information, this suggests that intracellular Zn^{2+} levels affect a common step in the replicative cycle of these viruses.

In cell culture, PT stimulates Zn^{2+} uptake within minutes and inhibits RNA virus replication through a mechanism that has only been studied in reasonable detail for picornaviruses [11,12]. *In vitro* studies with purified rhinovirus and poliovirus 3C proteases revealed that protease activity was inhibited by Zn^{2+} [13,14], which is in line with the inhibition of polyprotein processing by zinc ions that was observed in cells infected with human rhinovirus and coxsackievirus B3 [11]. The replication of segmented negative-strand RNA viruses such as influenza virus, however, does not depend on polyprotein processing and the effect of PDTC-mediated Zn^{2+} import was therefore hypothesized to result from inhibition of the viral RNA-dependent RNA polymerase (RdRp) and cellular cofactors [4]. Moreover, an inhibitory effect of Zn^{2+} on the activity of purified RdRps from rhinoviruses and hepatitis C virus was noted, but not investigated in any detail [15,16].

Details on the effect of zinc ions are currently largely unknown for nidoviruses. This large group of positive-strand RNA (+RNA) viruses includes major pathogens of humans and livestock, such as severe acute respiratory syndrome coronavirus (SARS-CoV), other human coronaviruses, the arteriviruses equine arteritis virus (EAV), and porcine reproductive and respiratory syndrome virus (PRRSV) [17,18]. The common ancestry of nidoviruses is reflected in their similar genome organization and expression strategy, and in the conservation of a number of key enzymatic functions in their

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