

Mathematical Formulation Applied to Health, Disease, and Death Induced by SARS-COV2

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ABSTRACT

Our previous theories point that health result from and equilibrium between Eukaryotes and Prokaryotes in Human or Animal. Interestingly, health could be interpreted by emointelligence equation based on Emotion (E) and Intelligence (I) of Eukaryotes and Prokaryotes in the case when $\text{Log}(E \text{ Euk}/E \text{ Prok}) = 0$. In sum, good health could be related to the stability of the ratio (R) of E Eukaryotes/ E Prokaryotes around one. By looking for possible interaction between Eukaryotes and Prokaryotes, we attempt to introduce a new concept of mathematical interpretation of disease such as COVID-19. Finally, when $\text{Log}(E \text{ Euk}/E \text{ Prok}) = -\infty$ we have $E \text{ Euk} = 0$, indicating a negative evolution of health leading to disease and death induced by SARS-COV-2

Keywords: Health, Death; Eukaryote, Prokaryote, SARS-COV-2.

INTRODUCTION

The present manuscript aims to propose a mathematical interpretation of Health, Disease, and Death in the different cases of COVID-19 by i) thinking as usual out of the box and ii) by introducing mathematical tools to better understand the evolution of Human or Animal from good Health, to Disease and Death. Our aim is to develop methodologies or theories able to understand Prokaryote-Eukaryote interactions and their implication in health stability and disease genesis in a special context of COVID-19. Nowadays, we can consider a concept of a “quantum information” ‘governing the interactions of living system based on emointelligence equation between Eukaryotes (Human and Animal) and Prokaryotes (bacteria, parasites, virus like SARS-COV-2) (Abdelmelek et al, 2019). Health could result from natural quantum mechanisms based on One Nature One Emotion One Health concepts (Abdelmelek et al, 2018; 2019). Health could be understood as living systems coherence or harmony (Kaplan, 2001).

The good health in Human or Animals could be associated to the stability or equilibrium between Eukaryotes and Prokaryotes values giving a ratio (R) near one. Interestingly, health could be interpreted by emointelligence equation based on Emotion (E) and Intelligence (I) of Eukaryotes and Prokaryotes when $\text{Log}(E \text{ Euk}/E \text{ Prok}) = 0$ and $E \text{ Euk}/E \text{ Prok} = 1$. Thus, every disruption of ratio $E \text{ Euk}/E \text{ Prok}$ stability by microbes, xenobiotics, electromagnetic fields...etc gives both values ratio < 1 or ratio > 1 . Interestingly, Emointelligence equation explain in part the disease genesis. The mathematical resolution of emointelligence equation could be based on three ratio values ($R < 1$, $R = 1$, $R > 1$). Emotion could modulate the interaction of Prokaryote-Eukaryote during stress. In sum, when $R < 1$, the equation gives $E \text{ Euk}/E \text{ Prok} < 1$ so we have an increase of E Prok related to infectious disease observed by SARS-COV-2 septicemia. By contrast, when $R > 1$, the equation gives $E \text{ Euk}/E \text{ Prok} > 1$ so we have an increase of E Euk related to neoplastic process. Finally,

when $\text{Log. } (E_{\text{Euk}}/E_{\text{Prok}}) = -\infty$ we have $E_{\text{Euk}}=0$, indicating a death status induced by SARS-COV-2

Interestingly, we believe that emointelligence algorithm describe good health in Human or Animal with a harmony between E_{Euk} and E_{Prok} . In addition, disharmony between E_{Euk} and E_{Prok} induced by SARS-COV-2 leads to COVID-19 and death.

More generally, a pool of emotion, algorithm and health might be fundamental for interaction of Euk (Human or Animal) and Prok (SARS-COV-2) rules to maintain good health. Interestingly, patients infected with SARS-COV-2 showed higher body temperature of 39.0 °C, leukocyte numbers and increased levels of plasma pro-inflammatory cytokines. Some of the severe cases that were admitted to the intensive care unit showed high levels of pro-inflammatory cytokines and $\text{TNF}\alpha$ that are reasoned to promote disease severity (Huang.et al, 2020). In addition, SARS-COV-2 induces hypoxia associated to an increase of erythropoiesis. Given that, leucocystosis and erythrocytosis during COVID-19 disease (Huang.et al, 2020) try to correct the total

number of Euk cells compared to SARS-COV-2 and other microbes number in order to maintain the ratio R near 1. If, the organism cannot maintain the ratio stability we will observe different complication (disease) and death.

Future interpretation to control the spread of the disease must be based to extensive measures to reduce interactions between SARS-COV-2 with person. The early death cases of COVID-19 outbreak occurred primarily in elderly people with low emotion, possibly due to a weak immune system that permits faster progression of viral infection and the ratio is low than 1.

THEORETICAL FOUNDATIONS

Equation (1) $I_{\text{Prok}} = \varepsilon E_{\text{Prok}}^\alpha T_{\text{Prok}}$ (Eq1)

Equation (2) $I_{\text{Euk}} = \varepsilon E_{\text{Euk}}^\alpha T_{\text{Euk}}$ (Eq2)

(Eq2)/ (Eq1) $I_{\text{Euk}}/I_{\text{Prok}} = T_{\text{Euk}}/T_{\text{Prok}} * (E_{\text{Euk}}/E_{\text{Prok}})^\alpha$

Constante 1 of $T_{\text{Euk}}/T_{\text{Prok}} = 3.1510^{10}$

$\text{Log } I_{\text{Euk}}/I_{\text{Prok}} = 10 + \alpha \text{Log } (E_{\text{Euk}}/E_{\text{Prok}})$

$f(x) = 10 + \alpha \text{Log}(x)$

I: Intelligence or Innovation, T: Time, E: Emotion, α : Factor and ε : coefficient, Euk: Eukaryote, c: Prokaryote.

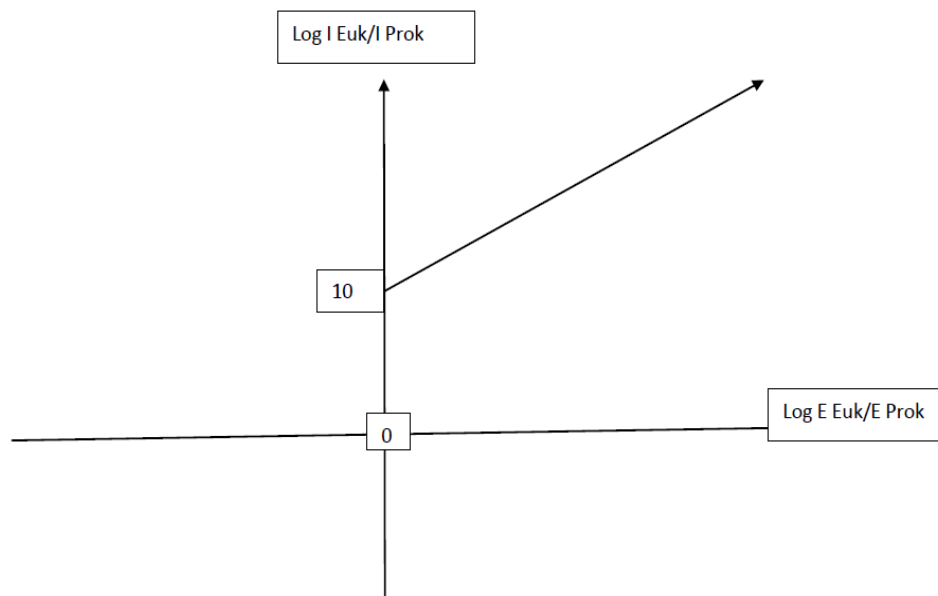


Figure1. Graphical representation of emointelligence equation applied to Prokaryote (Prok) and Eukaryote (Euk) in COVID-19

I: Intelligence or Innovation, E: Emotion.

Interestingly, the interpretation of emointelligence equation when $\text{Log } (E_{\text{Euk}}/E_{\text{Prok}}) = 0$ show positive values of $\text{Log } (I_{\text{Euk}}/I_{\text{Prok}})$ near 10 and $E_{\text{Euk}}/E_{\text{Prok}}=1$, indicating a management of algorithm in Euk and Prok leading to good health in Human or Animal. In addition,

calculation of α values (-6, 0, +6) indicate that $I_{\text{Euk}}/I_{\text{Prok}}$ explain health or disease status (Figure 1). By looking for possible interaction between lungs and intestine, we attempt to introduce an innovative concept called Prokaryote and Eukaryote stability or

microbiota stability. Prokaryote-Eukaryote provides space-time model that correlates for algorithm stability in all emotional or intellectual processes. This present manuscript introduce a concept of Eco-Health suggesting the necessity of Human or Animal connectedness to nature and the necessity to preserve natural resources. Recent research demonstrate the existing of signals (QI) or information that circulate only between living systems in nature ((Berman et al, 2008; Bratman et al, 2012; Abdelmelek et al, 2020) in order to explain the real significance of disease compared to health.

CONCLUSION

Our theories pointed to the existence of possible mechanism of ratio stability between Prokaryote and Eukaryote to maintain good health, indicating that Prokaryote-Eukaryote provides algorithm to understand health, disease, death status.

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