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SARS-CoV-2 affected cells Pathogeny and Therapy

Ponizovskiy M.R[1,*]

[1]Kiev, Ukraine, "Kiev regional p/n hospital", /Head of "Laboratory Biochemistry and Toxicology"

Abstract

There were compared mechanisms infecting a human organism by different viruses in relation to interaction between human diploid cellular cycle mechanisms and coronaviruses haploid genomic mechanism. Besides there were described mechamism forming combined haploid-diploid cellular cycle of viral affected cells due to interactions between human cellular cycle mechanisms and coronaviruses genomic mechanism. Further there were considered infected way of SARS-CoV-2 from mechanism maintenance stability Internal Energy of an organism's able-bodies cells and transmutation them into viral affected cells leading to death of affected cells of high respiratory level in nose-trachea-bronchi with transiting coronaviruses through dead cells' wall and infecting lungs' cells. Taking into account great searches of methods treatments Coronaviruses infected disease, we offered to approved through detail clinical Trial of new efficient method of treatment ill patients with SARS-CoV-2 disease which can rescue of still alive lungs' cells. Moreover there was reviewed offered therapy of SARS-CoV-2 induced disease.

Corresponding author: Ponizovskiy M.R, Herschelstrasse 33, 90443 Nuernberg, Germany, Tel: (49911)-653-78-11; E-mail: ponis@online.de

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Introduction

The obtained from parents‘ organisms, the human organism‘s Basic Internal Energy (E_{bas}) is preserved in Central Nervous System of Basic stem cells [neurons]. An organism expends energy from Basic Internal Energy for cells‘ development through sequentially from Basic stem cells [neurons] → Totipotent stem cells → Pluripotent stem cells → Multipotent stem cells → Oligopotent stem → Unipotent stem cells and then distributing between various types cells which lead to different frequency cells' proliferations relating to level of the cells. Human proliferative processes are occurred via diploid cellular cycle which exert by interaction between chemical potential of an organism's tissues (μ_{org}) and chemical potentials of cells (μ_{cell}) reflecting mutual interactions between Internal Energy of an organism and cells‘ Internal Energy. These interactions between an organism and its cells are realized by resonance waves of cellular capacitors causing biophysical mechanism maintenance stability Internal Energy of an organism (stable temperature 36,6°C by which all enzymes operate etc.) [1, 2, 3] (Figure 1). On the other hand, there are arisen different viruses with their haploid cellular cycle causing different diseases how coronaviruses, influenza viruses, HIV virus, viral oncogens [v-oncogens] etc. Viruses have no own respiratory systems. Therefore viruses use the human cells' mitochondrial aerobic respiratory system of cytochrome c system and electron transport chain of five Complexes for its viral cellular oxidative processes [4]. However consumption energy from viral affected human cells for building new affected cells via haploid-diploid cellular cycle are different by different viruses because different viruses obtain human Basic Internal Energy [molecular bonds energy] in different levels. For example, coronaviruses as well as influenza viruses obtain energy of human Basic Internal Energy [molecular bonds energy] from Type cells being light separated by an organism. Just coronaviruses are excreted in deep respiratory level of an organism's lungs with destruction viruses into dead affected cells, but influenza viruses are excreted from high respiretory level of nose – trachea - bronchi into Environment within dead affected cells. As concerning to cancer cells, v-oncogenes intrude in deep level cellular genome for using human Basic Internal Energy [molecular bonds energy], maybe on levels either Oligopotent stem cells or Unipotent stem cells or even Multipotent stem cells transmutating also mitochondrial oxidative processes of affected cells [4]. Therefore coronaviruses display Apoptosis affected cells often with their organ (lungs); influenza viruses display Apoptosis affected cells without their organs nose – trachea - bronchi; v-oncogenes display Apoptosis Resistance of cancer cells creating accelerating viral cellular cycle with irrepressible proliferative processes, mechanisms metastasis, cellular invasion, relapses cancer diseases. Thus all intrusion viruses into an organism lead to transiting Stationary State of thermodynamic system of an organism into Quasi-stationary pathologic State of thermodynamic system of an organism (Figure 2).

Generation and Development Viruses Including SARS-CoV-2 in cells of an Organism from the Point of View of Thermodynamics, Biophysics and Biochemistry.

The viruses, including coronaviruses, cannot live in Environment versus other prokaryotic organisms, e.g. bacteria. Viruses are initial generated into genetic relative cells of living organisms by especial quanta of Solar rays forming by Solar thermonuclear synthesis [4]. Just bacteriophage infects bacteria. Coronaviruses infect genetic relative cells of certain birds or certain animals. However coronaviruses genomic mechanisms can be transmuted into related to human genomic mechanism causing either by special laboratorial artificial transmutation or by accidental laboratorial artificial transmutation from the other laboratorial aim. Then coranaviruses are transmitted from one organism to other organisms infecting these organisms which can lead to epidemic and ever transiting into pandemic. Just coronaviruses use type cell's oxidative cellular processes choosing an organism respiratory way from high respiratory level epithelium [nose - trachea - bronchi] into low or deep level epithelium of lung for coronaviruses prokaryotic cells survival. Generated by especial quanta of Solar rays causing by thermonuclear synthesis in Sun, coronaviruses' initial located in eukaryotic cells. These coronaviruses have haploid genome which exerts anabolic endergonic biosynthetic processes but need catabolic aerobic processes of respiratory oxidation, i.e. electron transport chain and mitochondrial cytochrome c system. Just each cell can function exhibiting common balance anabolic endergonic processes & catabolic

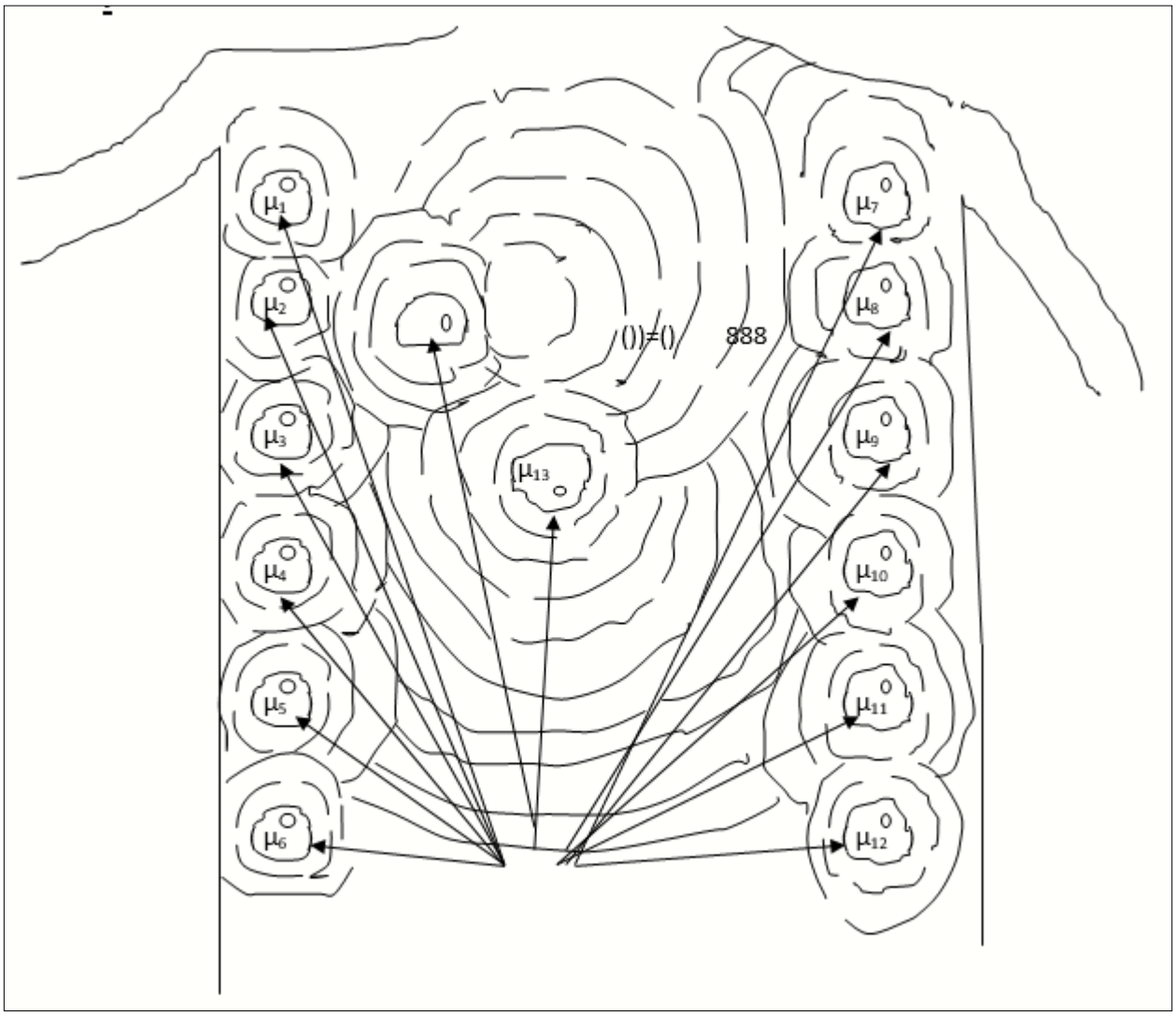

Figure 1. Balance Internal Energy both cells and an organism due to their chemical potentials (μ) promoting operation resonance waves of cellular capacitors.

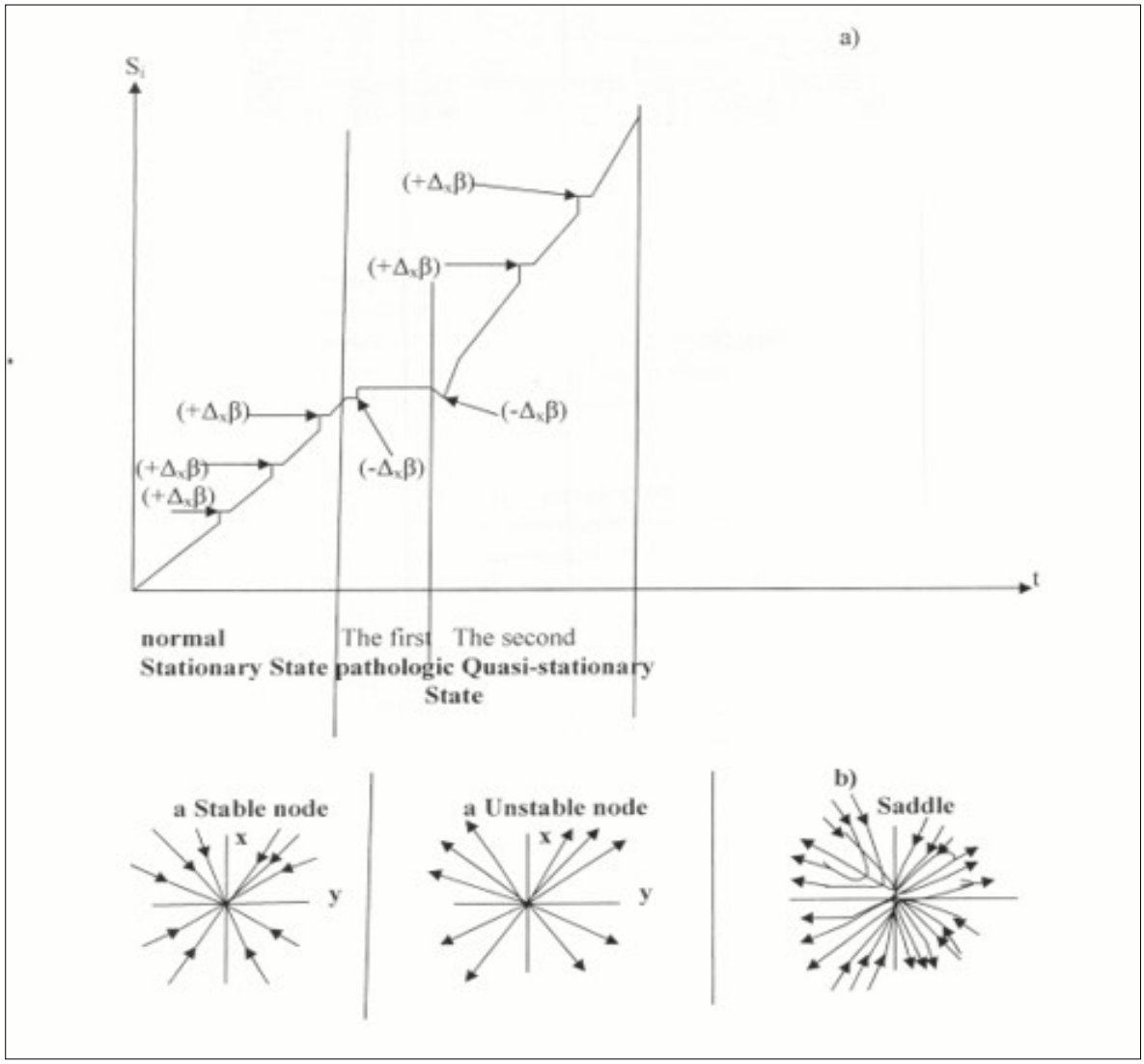

Figure 2. Change fluctuations of an entropy at transition from normal Stationary State into pathologic Quasi-stationary State.

anaerobic exergonic processes & catabolic aerobic exergonic processes which are shared into two separated parts balance anabolic anaerobic endergonic processes & catabolic exergonic processes and balance catabolic anaerobic exergonic processes & catabolic aerobic exergonic processes. These two separated parts balances are mutual exerted one another causing driving mechanism of cellular cycle in norm [5, 6]. Coronaviruses have no own respiratory systems. Therefore coronaviruses use the human cells' mitochondrial cytochrome c system and electron transport chain for its cellular oxidative processes. Also consumption energy from Basic Internal Energy [molecular bonds energy] by coronaviruses for their cellular cycle occurs through Type cells on different levels of an organism. For example, influenza viruses and coronaviruses obtain energy from Basic Internal Energy [molecular bonds energy] from Type cells. Thus coronaviruses haploid genome binds affected human cells' diploid genome [46 chromosomes] with covalent bonds causing couple affected cell's genomes which contain mixed genome from 49 till 56 chromosomes exhibiting aneuploidy versus 46 chromosomes in normal eukaryotic cells. This mixed genome containing from 49 till 56 chromosomes exhibits excessive anabolic processes of host metabolic processes, increased glycolysis and downregulating citric acid cycle (TCA) which Avner et al.[7] was named "part of a viral-induced Warburg effect", but better it should be named half of Warburg effect because downregulating citric acid cycle (TCA) is not full correspondence of "aerobic glycolysis" complete Warburg effect in cancer tissue metabolism [8]. Thus oncologic viruses use the human stem cells' electron transport chain for its cellular oxidative processes to build cancer cells exerting acceleration of viral proliferative processes. However consumption energy for building new cells via cellular cycle is different by different viruses because different viruses obtain energy of Basic Internal Energy [molecular bonds energy] on different levels of an organism. For example, coronaviruses and influenza viruses obtain energy of Basic Internal Energy [molecular bonds energy] from Type cells being light separated by an organism, but v-oncogenes intrude in deep level Basic Internal Energy [molecular bonds energy] of cellular genome, maybe on levels either Oligopotent stem cells or Unipotent stem cells or even Multipotent stem cells using also mitochondrial oxidative processes of an organism's cells that give cancer cell possibility firm binding in genome and to develop itself in autonomic mode from some regulatory functions of an organism [4]. It is meant that several v-oncogenes genome bind affected human cells' genome with covalent bonds causing couple cancer cells' genome which contain mixed genome containing from 49 till 56 chromosomes exhibiting aneuploidy, versus 46 chromosomes in normal eukaryotic cells [4]. Thus cancer genetic machinery is the coupled mechanism which contains both viral genomes and human genome consisting of 49 till 56 chromosomes [4]. The some of these chromosomes are inherited viral haploid division via Meiosis, the other chromosomes are inherited human diploid division via Mitosis. Therefore viral unary helix DNA uses hystons with CDKs mRNAs of viral properties, but human double helix DNA uses hystons with CDKs mRNAs of human properties. Furthermore it should be considered distribution energy in an organism from the point of view of thermodynamic laws. The formula of first law of thermodynamics shows Internal Work (W_{int}) of an organism which use Basic Internal Energy of stored energy in order to build molecular bonds of cells' subtances through cellular cycle. The some energy of an organism is received from Environment via foods using by External Work (W_{ext}) of an organism. The operations an Internal Work of an organism (W_{int}) with an External Work (W_{ext}) of an organism create mechanism maintenance stability Internal Energy (U) of an organism (e.g. stable temperature 36,6°C by which all enzymes operate etc.) corresponding first law of thermodynamics [$H = U + W_{int} + W_{ext}$ (H - Enthalpy)] [3, 9]. The initial infected by coronaviruses of type cells are affected in epithelium nose - trachea - bronchi of high level respiratory way of an organism's. These infected type cells are reacted on changed cellular inner chemical potentials (μ_{cell}) of their Internal Energy via inflammatory reaction of shift balance catabolic anaerobic processes & anabolic anaerobic processes into expression catabolic anaerobic processes with partial suppression catabolic aerobic processe in balance catabolic anaerobic processes & catabolic aerobic processes because catabolic aerobic processes were blocked via using catabolic aerobic processes by coronaviruses. The suppression catabolic aerobic processes in Internal Energy of these affected type cell result in death of these cells with destruction their walls by coronaviruses.

Just unlike excretion separated dead cells being affected by influenza viruses to Environment within nasal mucus, the released alive coronaviruses sink to lungs' cells of low respiratory level due to resonance waves of their capacitors and intrude through cellular walls into cytoplasm → nucleus and mitochondria of lungs' epithelial cells causing lungs inflamation which exerts immune defensive cellular reactions of T lymphocytes (phagocytes) and immune defensive humoral reaction of antibodies by B lymphocytes. Just defensive immune reactions promote production the immunoglobulins CTLA-4 and PD-1 [10 – 15]. T memory cells learn and remember to encounter antigens and via their resonance waves of cellular capacitors exert T helper cells through interactions between relative resonance waves of T memory cells and resonance waves of T helper cells [4]. So, defensive autoimmune reactions caused by T cells in following mode: T helper cells stimulate autoimmune reactions of some immune cells [T lymphocytes and B lymphocytes] influencing by resonance waves of variable cellular capacitors in their walls and of their receptors on T killer cells. Then T killer, being exerted by T helper via their resonance waves of cellular capacitors, destroy some autoantigens of IgE including some viral antigens coupled with autoantigens via producing proteases and esterase enzymes [16, 17, 18] (Figure 3). Thus it occurs very dangerous pneumonia which can kill both affected cells and coronaviruses resulting in death of an organism. However the rational therapy can rescue alive cells. Just the production the immunoglobulins CD-28, CD-80 (B-7-1), CD-86 (B-7-2) by RES cause suppression function all T cells in norm [10 – 15].

Tentative Mechanism Mutation Genome of Nicht Bat Coronaviruses into Genome Human Coronaviruses.

It is known that human genome can be infected only by related genome of a viruses. Therefore genomes coronaviruses of night bat can not infected other animal genome without man's artificial mechanisms of a laboratory. Studying genome Coronavirus of human organism, Nobel Preis Award winner Prof. Luc Montagnier has found supplemental double strong genome Coronavirus of night bat with weak genome Coronavirus of human immundeficiency virus (HIV). Hence it was arisen hypothesis that chinese scientists from Wuchang Institute have the aim and scope to weaken genome Coronavirus of human immunodeficiency virus (HIV) in order to make vaccine against human disease of immune deficiency. They have used genetic thechnology of fusion genome Coronavirus of human immundeficiency virus (HIV) with genome Coronavirus of night bat, and they have received weak genome Coronavirus of human immundeficiency virus (HIV) and some weakened of strong genome Coronavirus of night bat. However they did not take into account possibility mutation of some weakened of strong genome Coronavirus of night bat. Now I must use famous Glansdorff and Prigogine theory in order to elucidate mechanism of this mutation of genome. First of all, each organism including virus is the open non equilibrium non linear thermodynamic system according eminent Prigogine theorem and Glansdorff & Prigogine theory. Thus taking into account Prigogine theorem corresponding to minimization of gain entropy as mechanism maintenance stability an open non equilibrium thermodynamic system of an organism, Glansdorff and Prigogine theory has expanded minimum production entropy into non linear field causing minimization of gain entropy for stability Stationary State of an organism. They divided local production Enropy into two data which reflects stability in non linear development open thermodynamic system of an organism via such formula:

$$d\beta / dt = d/dt \left(\sum_k J_k X_k\right) = \sum_k J_k dX_k/dt + \sum_k X_k dJ_k/dt$$

[β – Entropy, t – time, X – Force, J - Stream]

The stability system shows following formula: $d\beta/dt = \sum dJ_k dX_k/dt = d_x\beta/dt$, if $dJ_k/dt = 0$; Hence stability thermodynamic system defines Force (X).

Thus the minimization gain entropy shows: $d_x\beta/dt \leq 0$, i.e. negative fluctuation entropy. It is meant that it is far away from equilibrium of open thermodynamic system although the sign of equality defines Stationary State thermodynamic system of an organism.

Just state stability Stationary State is arisen so: If $d_x\beta = \sum dJ_k dX_k /dt > 0$ [If $dJ_k/dt = 0$], it corresponds to positive fluctuations entropy ($+\Delta_x\beta$). However the positive fluctuations entropy ($d_x\beta > 0$) are fast disappeared in such situation of Stationary States thermodynamic system due to principle the minimization gain entropy in Stationary State. Thermodynamic system must return to initial state. But there arise negative fluctuations enropy ($d_x\beta < 0$) ($-\Delta_x\beta$) which transits

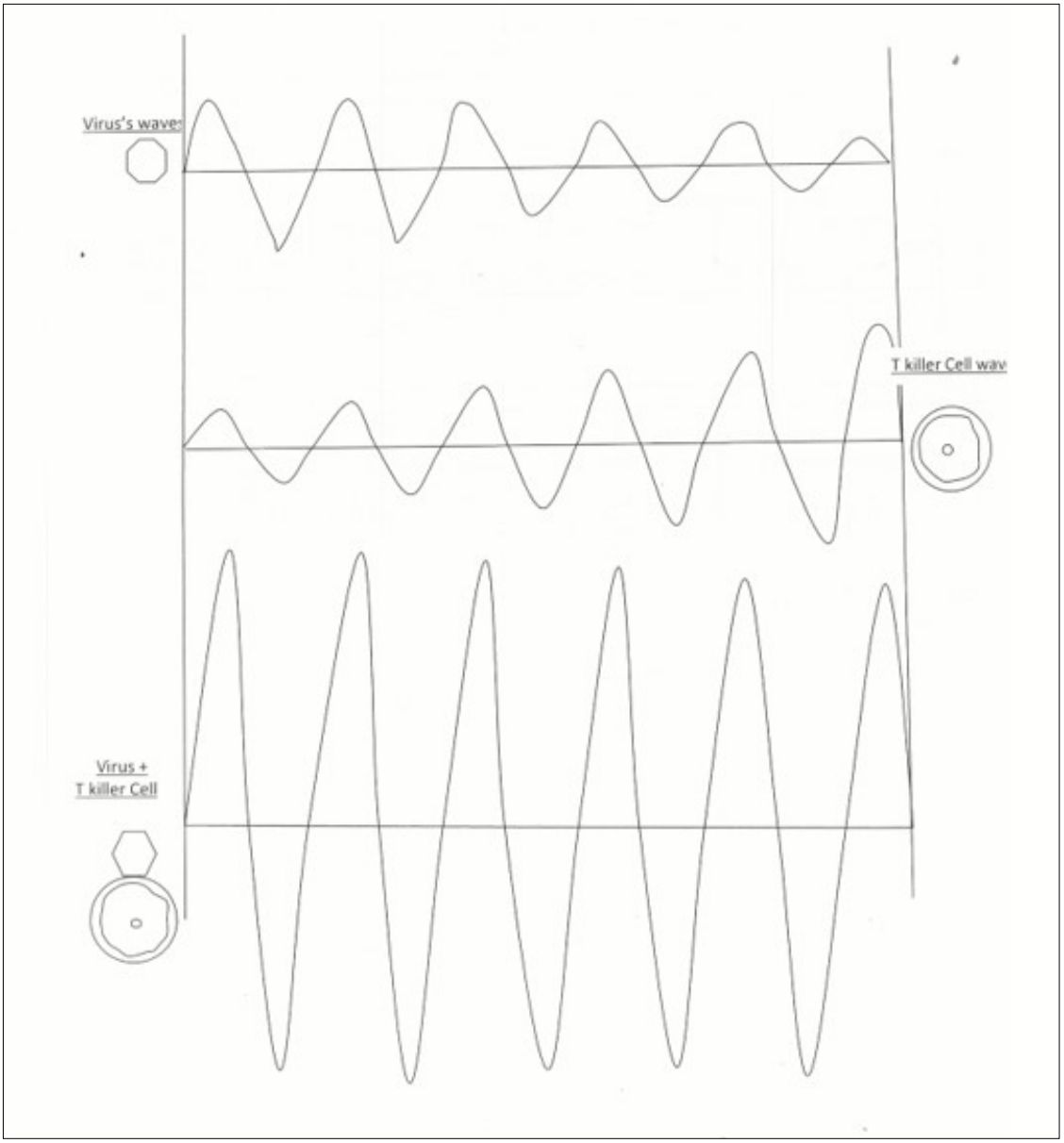

Figure 3. T cell killer resonance waves of attraction to strange Virus.

thermodynamic system into new Stationary State of decreased entropy $\Delta S_x < 0$ (ΔS_x is the gain entropy) (Figure 5). Thus Glansdorff and Prigogine theory explains mechanism development of an organism during its life as open non equilibrim non linear themodynamic system. Just Force of energy (X) defines as stability Stationary State of open thermodynamic system via positive fluctuation entropy ($+\Delta_x\beta$) of anabolic processes in cellular cycle as well as negatve fluctuation entropy ($-\Delta_x\beta$) causing obstacle further development thermodynamic system that result in transition thermodynamic system into new Stationary State with decreased fluctuation entropy ($\Delta S_x < 0$), i.e. minimization gain entropy according Prigogine theorem. Thus $\sum dJ_k dX_k/dt$ is meant exchanged such manifestations entropy in following modes: manifestation Force which is meant manifestation anabolic endergonic processes $\sum J_k dX_k/dt$ with positive fluctuation entropy ($+\Delta_x\beta$), then manifestation Stream which is meant manifestation catabolic exergonic processes $\sum X_k dJ_k/dt$ with negatve fluctuation entropy ($-\Delta_x\beta$). Thus some weakened of strong genome Coronavirus of night bat had violated genome due to its fusion to genome Coronavirus of human immundeficiency virus (HIV). Therefore state of some weakened of strong genome Coronavirus of night bat was corresponded to negatve fluctuation entropy ($-\Delta_x\beta$), and genome of some weakened of strong genome Coronavirus of night bat needed repairing anabolic endergonic biosynthetic energy for its development. Just some weakened of strong genome Coronavirus of night bat has infected the organism of one employee of laboratory Wuchang Institute either accidentally or by mistake where some weakened of strong genome Coronavirus of night bat has affected cells of this employee of laboratory and obtained repairing anabolic endergonic biosynthetic energy from Basic Internal Energy (E_{bas}) of human organism which gave possibility for genome Coronavirus of night bat to change state of negatve fluctuation entropy ($-\Delta_x\beta$) into state positive fluctuation entropy ($+\Delta_x\beta$) via mutation genome Coronavirus of night bat into development genome Coronavirus of human organism. Further it was occurred spreading SARS-CoV-2 pandemic through whole World.

Mechanism Operation "Prolonged Medical Starvation 30 - 42 Days with Using Small Dosage anti-lipotropic Drugs" in SARS-CoV-2 Pneumonia Therapy.

The "Prolonged medical starvation 30 - 42 days" leads to activation catabolic exergonic processes in an organism for maintenance stable temperature 36,6°C – 37,3°C by which all enzymes operate [8, 19 – 23]. An organism obtains substances for its metabolism from depots of an organism in condition of treatment via "Prolonged medical Starvation during 30-42 days" [8, 19 – 23]. The treatment by "Prolonged medical Starvation (during 30-42 days)" causes considerable decrease almost of all depots (especially fat depots) of an organism. Just "Prolonged medical Starvation during30-42 days" exhausts an organism's fat depots and hydrocarbonic depots. Therefore an organism use the remained decreased depots in order to maintain the normal temperature 36,0ºC-37,0°C by which the all enzymes operate. The expressed catabolic aerobic exergonic oxidation and catabolic anaerobic exergonic processes of oxidative phosphorilation generate great quantity calories promoting partial suppression of anabolic endergonic processes as in an organism, its tissues as well as in G1 phase cellular cycle causing partial suppression S phase cellular cycle which also suppress anabolic endergonic processes in coronaviruses the condition of the treatment by "Prolonged medical Starvation during 30-42 days". Therefore it occurs suppression anabolic biosynthetic endergonic processes, including metabolism of lipids, in metabolic processes of viral cellular processes [8, 19 – 23]. The protective forces of the organism are supported by herbal extracts delivering vitamins and microelements into the organism. Thus "Prolonged medical Starvation" promoting partial suppression anabolic endergonic processes of corona-viruses metabolism eliminate further movement of coronaviruses from infected cells to alive cells, i.e. moving from affected cells of high respiratory level nose - trachea - bronchi cells into low respiratory level lungs' cells. Besides expression catabolic processes in cellular cycles of alive cells stimulates immune system of T cells [T lymphocytes] via appearance both cellular and humoral immune reactions of produced immunoglobulins CTLA-4 and PD-1 due to resonance waves of cellular capacitors T memory cells learn and remember on waves function of viral substances

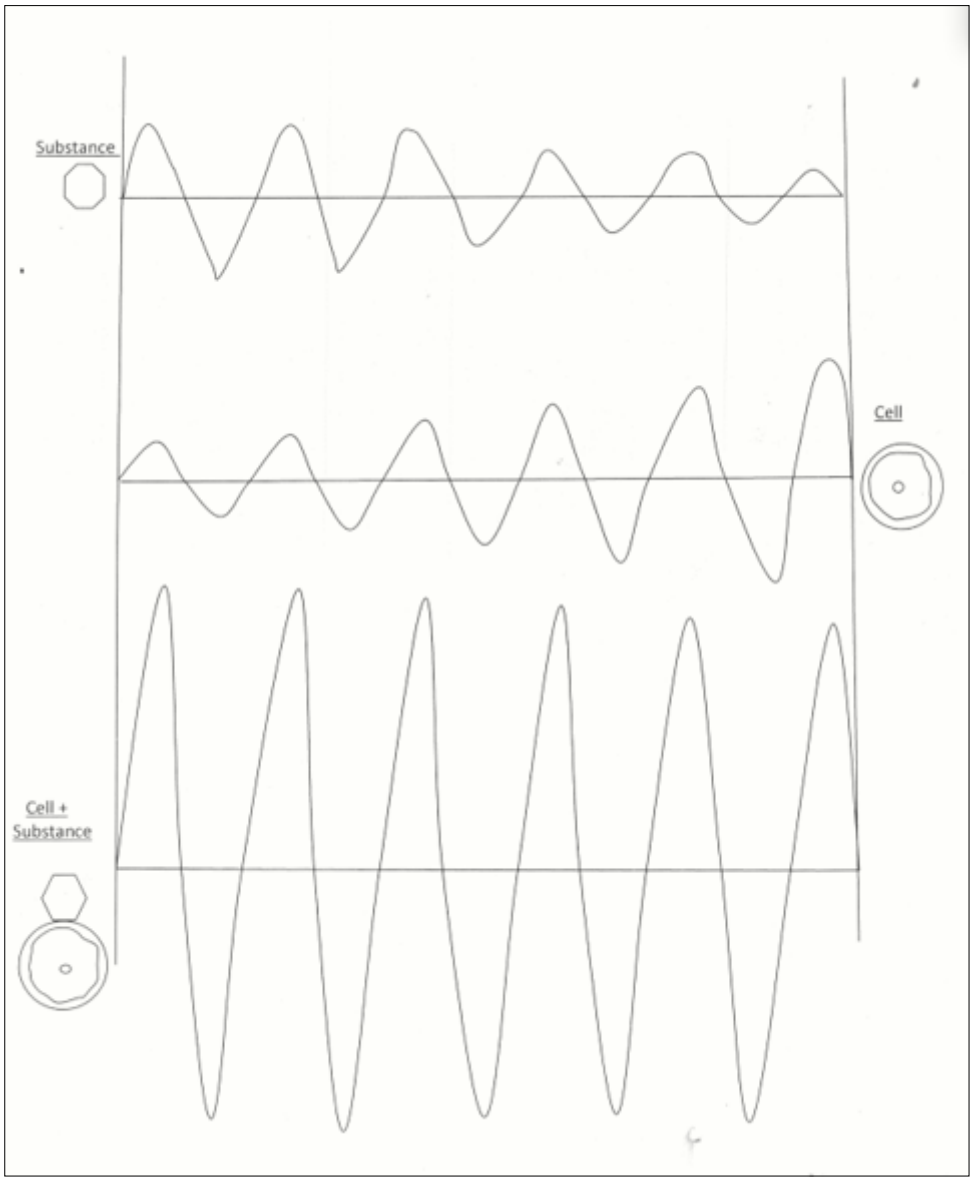

Figure 4. Cellular distance resonance on dead cells as the strange agents by autophagy.

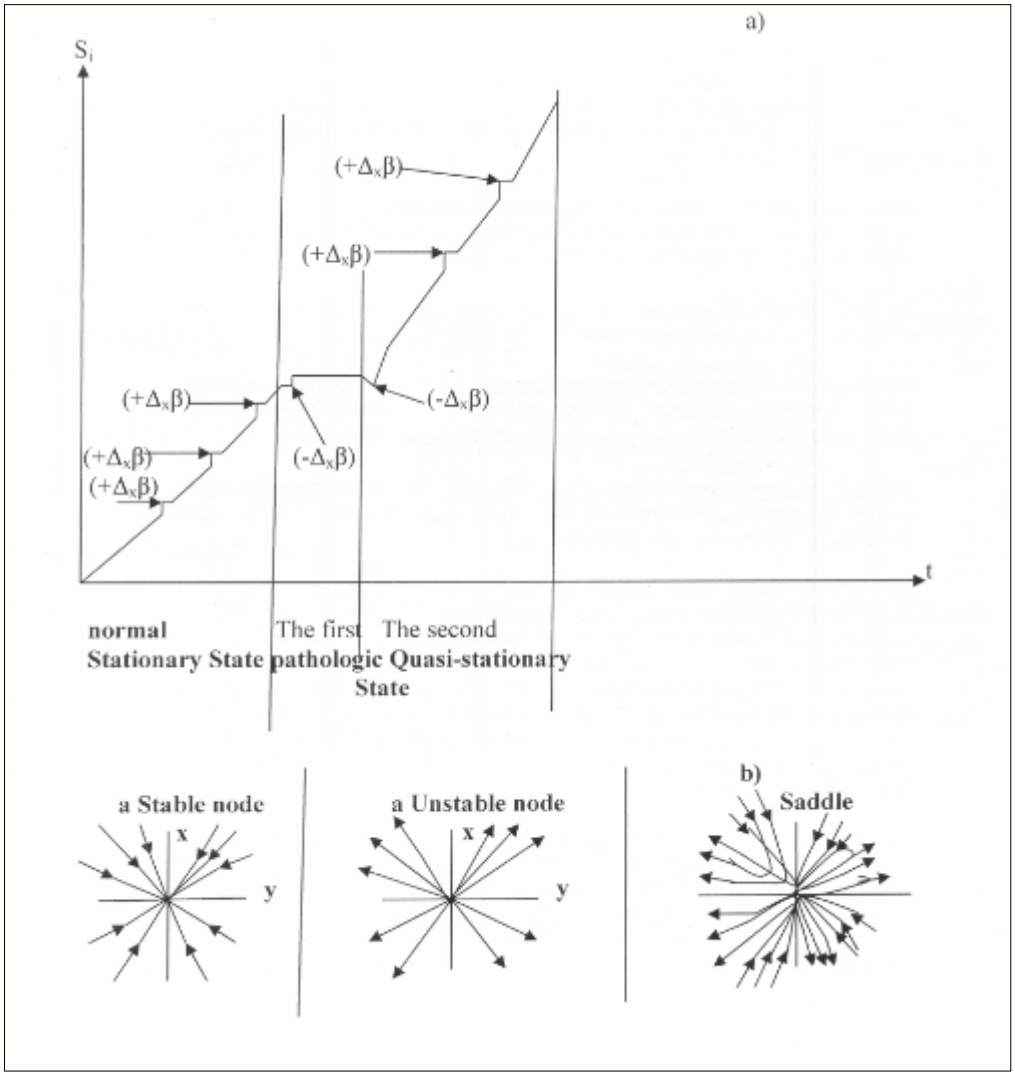

Figure 5. Change fluctuations of an entropy at transition from normal Stationary State into pathologic Quasi-stationary State.

corresponding to Schroedinger equation of linear combination of atomic orbitals (MO LCAO) [2, 9, 10 - 15]. Then T memory cells exert T helper cells, and T helper cells stimulate T killer cells for authophagy of dead cells with phagocytosis coranaviruses and B cells for production antibodies against coronaviruses substances (Figure 4).

Discussion the SARS-CoV-2 Disease Treatment via "Prolonged Medical Starvation During 30-42 Days"

The method „Prolonged medical Starvation with supporting by extracts herbal and exerting by small dosage of medical drugs" was borrowed by folk healer Rudolf Breuss [24, 25]. The crucial role of maintenance Internal Energy stability of the organism in condition of Prolonged medical Starvation appertains to the extracts of herbs and the Vegetable Juice Mixture, which deliver to an organism necessary microelements and vitamins, especially folic acid, that is necessary for hemopoiesis, and decreases also excessive acidification in the blood of the organism. However considering that Breuss R. offered this method treatment for healing oncologic diseases, which author of this manuscript substantiated from point of view of current scientific data in his works, this method treatment SARS-CoV-2 disease must be approved via detail clinical Trial. Besides it should pay attention that Breuss R. recommended the extract of red cranesbill (Geranium robertianum) which very small concentration contains significant amounts of Vitamins A, B and C as well as such minerals: calcium, potassium, magnesium, iron, phosphorus, germanium, according to Shipard Isabell [26]. Besides, folk healer R.Breuss notes that red cranesbill (Geranium robertianum or Herb Robert) contains the small quantity of radium [24, 25]. Also Shipard Isabell notes that Geranium has wide range of clinical applications as remedy with such properties: antibiotic and antiviral properties, sedative property, tonic, astringent, diuretic, digestive, antioxidant [26]. Helfer M. et al. show effect of Geranium on HIV-1 as antiviral remedy [27]. Furthermore it should take into account that such treatment with „Prolonged medical Starvation" can not make negative influence on immune and hormonal systems of an organism.

Discussion

The article entitled "The SARS-Cov-2 Transcriptional Metabolic Signature in Lung Epithelium" by Avner et al. experimental assays were carried out perfectly and revealed increase lipid metabolism with carbohydrate metabolic processes and glycolysis causing disregulation of the citric acid cycle (TCA) which authors are notating it as Warburg effect [defining cancer tissue metabolism] [1]. However versus Warburg effect showing cancer cells' Apoptosis Resistance and irreversible proliferative processes with metastases, SARS-CoV-2 shows dead affected cells [7, 28, 29, 30]. Hence it is better to notate it only as half of Warburg effect which is characterized such it without „aerobic glycolysis". Just I have searched in this work and did not find the assay of main respiratory function lung epithelial cells which is reflected by their mitochondria aerobic function of cytochrome c system [7]. Also I have searched in other similar works and did not find the assay of main respiratory function lung epithelial cells of their mitochondria aerobic function of cytochrome c system [7, 28, 29, 30]. Hence I determine that these increased lipid metabolism and glycolysis in affected lung cells' cytoplasms result in premortal state of these cells, and their increased lipid metabolism and glycolysis define such their states identically as increased connective tissue metabolism in unhealed wound resulting in great scar. Therefore remedies against increased lipid metabolism don't help premortal cells but suppress immune defensive processes of still alive affected cells making them vulnerable for SARS-CoV-2 activity. Just considering metabolism of SARS-Cov-2 affected cells, I offer the efficient method of suppression excessive anabolic biosynthetic metabolic processes in SARS-CoV-2 affected cells via „Prolonged medical starvation from 30 to 45 day with supporting by herbal extracts and using very small dosage Fenofibrate" which can save still alive SARS-CoV-2 affected cells [7, 28 - 30].

Conclusion

1. Prokaryotic organisms, including viruses, are initial generated by Solar reys of particular quanta.
2. The genome of Coronavirus of night bat was used by chinese laboratory in order to weaken genome Coronavirus of human immunodeficiency virus (HIV) to make vaccine against human disease of immune deficiency.
3. The chinese laboratory has created fusion genome of Coronavirus of night bat with genome

Coronavirus of human immunodeficiency virus (HIV) and received weak genome Coronavirus of human immunodeficiency virus (HIV) and some violated genome of strong genome of Coronavirus of night bat.

4. The chinese laboratory did not taken into account dangerous mechanism of mutation some violated genome of strong genome of Coronavirus of night bat for the employees of laboratory.
5. It is occurred mutation some violated genome of strong genome of Coronavirus of night bat into development genome Coronavirus of human organism.
6. Coronavirus of human organism was infected one employee of chinese laboratiry and affected cells of this person either accidentally or by mistake which lead to spreading SARS-CoV-2 in world pandemic.
7. There were explain mechanisms Generation and development viruses including SARS-CoV-2 in cells of an organism.
8. There was offered possible method of treatment man infected by coronavirus for detail approving via clinical Trial.

Acknowledgments

This article is dedicated to the memory of my daughter T.M. Ponisovska

References

1. Ponisovskiy M.R., (2011), "Driving mechanisms of passive and active transport across cellular membranes as the mechanisms of cell metabolism and development as well as the mechanisms of cellular distance reaction on hormonal expression and the immune response", Critical Reviews in Eukaryotic Gene Expression, 21 (3), 267 – 290.
2. Ponizovskiy M.R., (2015), Biophysical and Biochemical Mechanisms of Interactions Cytoplasm Processes with Nucleus Processes and Mitochondria Processes in Norm and in Pathology, Journal of Molecular and Genetic Medicine, Volume 9, Issue 3, 1 – 13, doi: 10.4172/1747-0862.1000171.
3. Ponizovskiy M., (2014),The mechanisms operation of thermodynamic system of a human organism, European Journal of Biophysics, 2 (4), 29 – 37, doi:10.11648/j.ejb.20140204.11.
4. Ponizovskiy M.R., (2019), A newer method cancer treatment which is based on Link Rearrangement Operations of T cells, International journal of Cancer and Oncology, 6(2), 42 – 51, doi:10.15436/2377-0902.19.2546. ISSN:2377-0902.
5. Ponizovskiy M.R., (2013), The Central Regulation of all Biophysical and Biochemical Processes as the Mechanism of Maintenance Stability of Internal Energy and Internal Medium both in a Human Organism and in cells of an Organism, Modern Chemistry & Application, 1 (1), 1 – 2, doi:10.4172/ mca.1000e101.
6. Ponizovskiy M.R., (2013), The mechanisms maintenance stability Internal Energy and Internal Medium an organism in norm and in quasi-stationary pathologic states, Biochemistry & Physiology, v. 2, Issue 3, 1 – 11, doi:10.4172/2168-9652.1000115.
7. Avner Ehrlich, Skyler Uhl, Kontentinous et al., (2020), SSRN - The SARS-CoV-2 transcriptional metabolic signature in lung epithelium, Cell Press, Journal on Sneak Peek Cell Metabolism, 27 p.
8. Ponisovskiy M.R., (2010), "Cancer metabolism and the Warburg effect as anabolic process outcomes of oncogene operation", Critical Reviews in Eukaryotic Gene Expression, 20 (4), 325 – 339.
9. Ponizovskiy M.R., (2018), Genetic mechanisms an open thermodynamic system of an organism in norm and pathology, Journal of Molecular and Genetic Medicine, Volume 12, Issue 2, 1 -15, doi:10.4172/1747-0862.1000355.
10. Harding F.A., McArthur J.G., Gross J.A., Raulet D.H., Allison J.P., (1992), CD28-mediated signalling co-stimulates murine T cells and prevents induction of anergy in T-cell clones, Nature, 356 (6370), 607-609. doi:10.1038/356607a0. PMID 1313950.
11. Krummel M.F., Allison J.P., (1995), CD28 and CTLA-4 have opposing effects on the response of T cells to stimulation, J. Exp. Med., 182 (2), 459–465 doi:10.1084/jem.182.2.459. PMC 2192127. PIMD 7543139.
12. Knieke K., Lingel H., Chamaon K., Brunner-Weinzierl M.C., (2012), Migration of Th1 lymphocytes is regulated by CD152 (CTLA-4)-mediated signaling via PI3 kinase-dependent Akt activation, PLoS ONE, 7 (3), e31391. doi:10.1371/ journal.pone.0031391. PMC 3295805. PMID 22412835.

13. Chen J., Ganguly A., Mucsi A.D., Meng J., Yan J., Detampel P., et al., (2017), Strong adhesion by regulatory T cells induces dendritic cell cytoskeletal polarization and contact-dependent lethargy, The Journal of Experimental Medicine, 214(2), 327 - 338, doi:10.1084/jem.20160620. PMC 5294852. PMID 28082358.

14. Shinohara T., Taniwaki M., Ishida Y., Kawaichi M., Honjo T., (1994), Structure and chromosomal localization of the human PD-1 gene (PDCD1), Genomics, 23 (3),704 – 706. doi:10.1006/geno.1994.1562. PMID 7851902.

15. Ishida Y., Agata Y., Shibahara K., Honjo T., (1992), Induced expression of PD-1, a novel member of the immunoglobulin gene superfamily, upon programmed cell death, The EMBO Journal, 11 (11), 3887 – 3895. PMC 5568982016,. PMID 1396582.

16. Rubinsztein D.C., Marino G., Kroemer G., (2011), Autophagy and aging, Cell, 146, 682–695.

17. Scudellari M , (2016), How iPS cells changed the world, Nature, 534, 310–312.

18. Ohsumi Y., Yoshinori Ohsumi, (2012), Autophagy from beginning to end. Interview by Caitlin Sedwick, J. Cell Biol., 197(2), 164–165.

19. Ponizovskiy M.R., (2012), The detailed description mechanisms of the herbs extracts operations in the new method cancer disease treatment via rearrangement of metabolism from pathologic development into normal development, Journal of Clinical Trials, v. 2, Issue 4, 1 – 10, doi:10.4172/2167-0870.1000124.

20. Ponizovskiy M.R., Cancer therapy via targeting Warburg effect leads to cancer metabolism depression that promotes efficient treatment with small dosage cytotoxic drugs, American Journal of Cancer Science, 2014, Volume 3, № 1, 30 – 53 (24 pages). doi:10.4172/2167-0810.1000124.

21. Ponizovskiy M.R., (2015), Cancer therapy leading to state of cancer metabolism depression for efficient operation of small dosage cytotoxic drugs, Journal of Cancer Research & Therapy, 3(3), 38 – 55, doi: 10.14312/2052-4994.2015-7.

22. Ponisovskiy M.R., (2011),Warburg effect mechanism as the target for theoretical substantiation of a new potential cancer treatment, Critical Reviews in Eukaryotic Gene Expression, 21 (1), 13 – 28.

23. Ponizovskiy M.R., (2018), The advantages of new method cancer therapy via targeting Warburg effect as compared to up-to-date methods of chemotherapy, SciFed Journal of Pharmaceutics Journal, v.1, Issue 2, 1 – 9. 1000007

24. Breuss R., (1992), "The cancer, leucomia and the other diseases", edit. Logos.

25. Breuss R., (1995), The Breuss Cancer Cure, Alive books Canada.

26. Shipard Isabell, (2003), How can I use Herbs in my daily life?, Grassroot.

27. Helfer M, Koppensteiner H, Schneider M, Rebensburg S, Forcisi S, et al. (2014) The Root Extract of the Medicinal Plant Pelargonium sidoides is a Potent HIV-1 Attachment Inhibitor. PLoS ONE 9 (1): e87487. doi:10.1371/journal.pone.0087487.

28. Blabco-Melo D., Nilsson-Payant B.E., Liu W.-C., Uhl S., et al., (2020), Imbalanced host response to SARS-Cov-2 drives development of COVID-19, Cell 181,1036 – 1045, e 1039.

29. Bornstain S.R., Dalan R., Hopkins D., Migrone G., Boehm B.O., (2020), Endocrine and metabolic link to coronavirus infection,, Nature Reviews Endocrinology, 16 (6), 297 – 298, doi:10.1038/s41574-020-0353-9.

30. Zhu L., She Z.-G., Cheng X., Qin J.-J., et al., (2020), Association of blood glucose control and outcomes in patients withCOVID-19 and pre-existing Type 2 Diabetes, Cell Metabolism, 31 (6), 1068 – 1077. doi:10.1016/j.cmet.2020.04.021.

31. Montagnier L, Del Giudice E, Aïssa J, Lavallee C, Motschwiller S, Capolupo A, Polcari A, Romano P, Tedeschi A, Vitiello G., (2015), Transduction of DNA information through water and electromagnetic waves, *Electromagnetic Biology and Medicine*. 34: 106-112. DOI: 10.3109/15368378.2015.1036072.

32. Mbopi-Kéou FX, Sagnia B, Ngogang J, Angwafo FF, Colizzi V, Montagnier L, Bélec L., (2012), Validation of a single-platform, volumetric, flow cytometry for CD4 T cell count monitoring in therapeutic mobile unit *Journal of Translational Medicine*. 10. PMID 22309994 DOI: 10.1186/1479-5876-10-22