
| RESEARCH ARTICLE

The Mechanism of Antiviral Action with Acupuncture Based on COVID-19: Antiviral Action and Acupuncture

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| ABSTRACT

The virus that created COVID-19 is a pathogen that enters the cell, multiplies, spreads and creates pathology by disrupting the functioning of the body throughout the extracellular environment. The most important step in fighting this pathogen is to prevent the virus from entering the cell. The second step is to inhibit the polymerase enzyme to prevent it from multiplying in the cell, and in the third step, to form antibodies against the protein formed. In the current medical system, it is out of question to receive news from within the cell. The vascular, lymphatic and nervous systems have no connection with the intracellular environment. The acupuncture channel (meridian) system, also known as the primordial system, has intracellular extensions. And these extensions have a connection with the outside. In accordance with the concept of the new cell, the meridian system has an external relationship. Acupuncture treatment affects through these relations. However, a model describing the antiviral mechanism of action with acupuncture is not yet available. In this study, we tried to create such a model by making use of western medicine.

| KEYWORDS

Acupuncture, Primordial System, Antiviral Effect, Solid Cell

| ARTICLE INFORMATION

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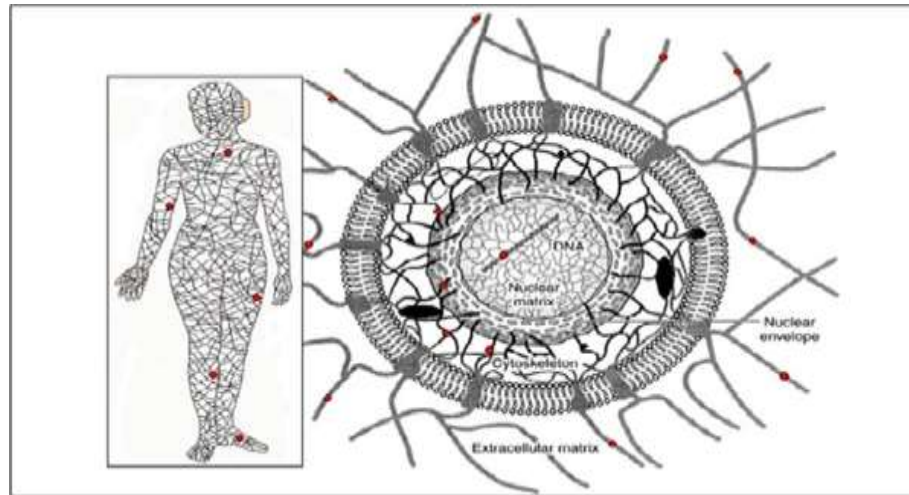
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Introduction

Intracellular Transport

Acupuncture channels begin to form from the 14th day of the embryo and appear as the fourth communication system. It is called the primordial system because it is the first system to develop in the body. (1) The difference of this system from the vascular, neuronal and lymphatic systems is that it also has extensions within the cell. In our opinion, in the new (solid) cell concept, the protein protrusions, filaments and microtubules found on and inside the cell are extensions of these channels within the cell.



Source: Ingber DE. Cellular tensegrity: defining new rules of biological design that govern the cytoskeleton. *J Cell Sci.* 1993;104:613-627.

New-Solid Cell Concept

Cells are not a bag of molecules filled with water. The cells are filled and there is no empty space (2,3). Cell; is in constant communication with its inside, environment and other cells. This communication is provided by structures called as cytoskeleton. Extracellular matrix, cytoskeleton and nuclear matrix form the cell's skeleton and communication system (1,2,3). Thanks to these structures, communication is provided between skin and internal organs. This new concept coincides with our system of channels. The primordial system must be articulated with this system.

The new cell and body structure was called the living matrix (3). The living matrix is defined as the continuous molecular tissue of the organism, consisting of fascia, other connective tissues, extracellular matrix, integrins, cytoskeletons, nuclear matrix, and DNA. Extracellular, cellular, and nuclear biopolymers or ground substances form a body-wide charge reservoir that can maintain electrical homeostasis. And the organism makes "inflammatory preparation". Recent studies have highlighted the importance of charge transfer regarding the scavenging or neutralization of free radicals delivered to injury sites during and after the oxidative burst. Evidence comes from studies of the role of electrons in mitigating the consequences of inflammation when living systems are connected to the soil (grounding). This phenomenon helps explain how bodywork and movement therapies can facilitate resolution of acute or chronic injuries and how patients with inflammatory conditions can "exhaust" a therapist during hands-on treatments. It is suggested that grounding, facilitate healing by stimulating the migration of loads to acute affected areas. Two hypotheses to explain the effects of grounding is that; charges/loads from the ground material reservoir, prevent "collateral damage" to healthy tissues surrounding an injury. And is that grounding makes electrons useful in the body, allowing electrons to replenish the charge in ground material reservoirs (3,4).



Source: www.shutterstock.com

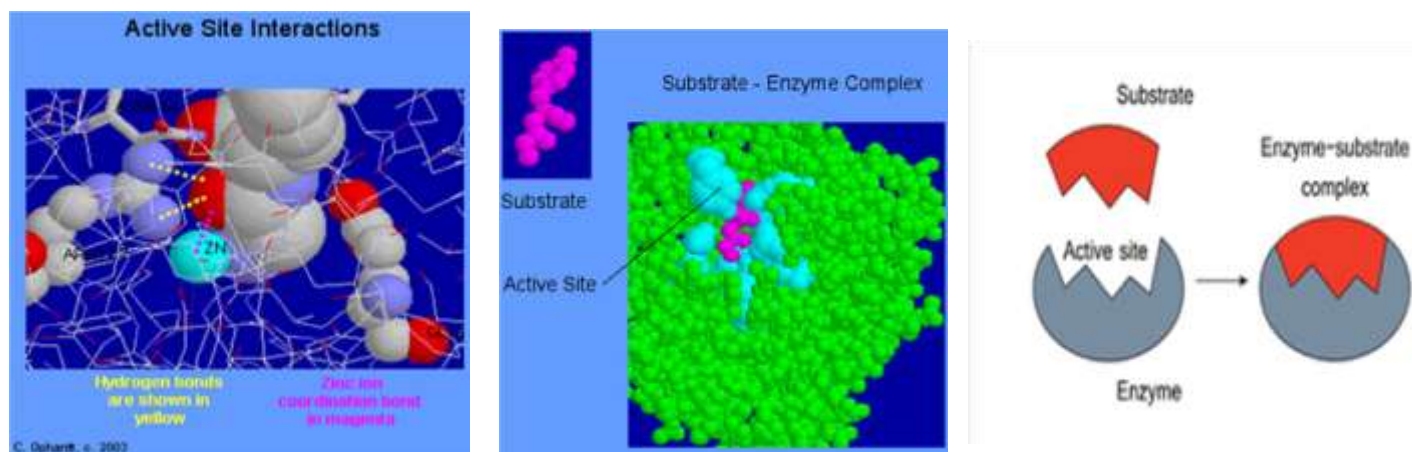
Primordial system provides communication between cells, tissues and organs. DNA, RNA, hyaluronic acid, stem cells, qi and biophotons circulate in the channels.

The frequency of each organ qi is different from the others. Qi's have different functions. For example, Spleen qi is responsible for shaping fluids. It prevents body fluids from hardening and forming a nodular structure. How it performs this task is unclear. In our opinion, Spleen qi controls the structuring of hydrogen bonds, formation and disintegration processes with a special vibration, allowing body waters to circulate in a special structure, preventing their aggregation, and ensuring the formation of water channels. Recent studies have shown that the Kidney-1 point has low resistance and provides electron flow from the soil to the body through the meridian and living matrix (5,6). In our opinion, this energy entering with the blood, enters the cell through horizontal channels (Luo meridian) with the help of integrins and receptors.

Virus Cell Adhesion

Viruses attach to the surface of the host cell, enter and infect. Multifunctional heterodimeric cell surface, surface integrins and their receptors serve to the entry of viruses. Although the mechanism of integrins within this process, is not fully known, it is thought that they are taken inside by combining with the capsid proteins or the proteins of their envelopes. The small peptide sequence (Arg-Gly-Asp) at the end of integrins is called RDG, this sequence is the binding site of most viruses.

Viruses can be defined as inert particles lacking the main attributes of life such as the production of energy and a self-sustaining metabolism. (7) Viruses are obligate intracellular parasites that require a host within which they replicate and they contain a genome-release system that ensures the virus genome is released from a particle only at the appropriate time and location. (8) Virus particles, 'virions', are autonomous entities and affect all forms of life in a parasitic relationship. The virions interact with cells; they gain huge complexity and give rise to an infected cell, also known as 'virus'. Virion-cell interactions include the processes of entry, replication and assembly, as well as egress from the infected cell. At last, these steps can result in progeny virions, which is a productive infection, or in silencing of the virus, an abortive or latent infection. (9)

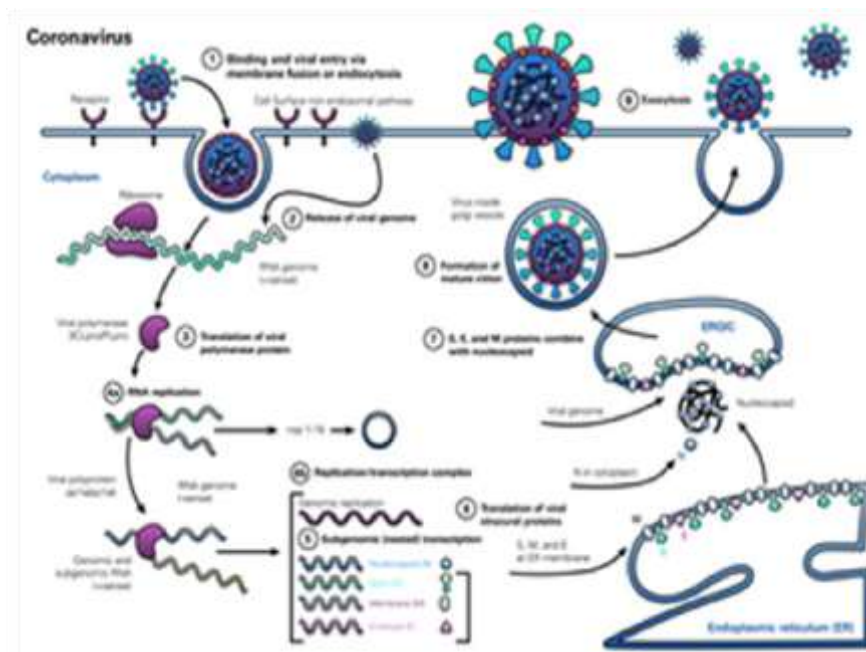


Source: Ophardt, C. E. (2003). *Active Site Interactions*. In: *Virtual ChemBook*. Benedictine University, Lisle, Illinois.
<https://chemistry.elmhurst.edu/vchembook/index.html>

We thought that viruses carry frosted DNA or RNA (frosted qi). That's why they can't activate as living beings. When contacted with a living being, taking its energy, DNA or RNA melts enabling it to become active.

The virus was considered as a substrate and the ACE-2 receptors on pneumocyte cells were considered as enzymes. Virus binds to the integrins, the active center, in the extracellular matrix of the cell. When the substrate approaches the enzyme, a spatial (conformation) change of the enzyme occurs, a path can be opened in the cell membrane. This change ensures substrate exchange with appropriate energy. Substrate turns into a product. At the end of binding, cell energy passes to the virus. The virus gains energy, converted into a suitable form for activation, then enters the cell.

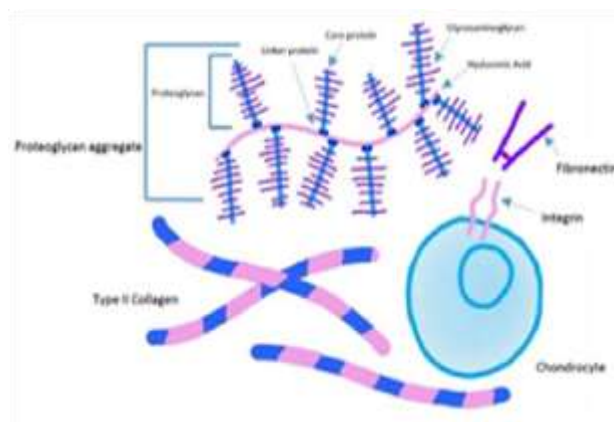
The entire process of virus entry begins with the binding of the virus. Binding to cells is a reversible process that does not guarantee virus entry. Virus binding only ensures viral proximity to the cells. However, this process is the most important step that initiates the entire chain of events and eventually results in the internalization of the virus.



Source: Schematic representation of the virus replication cycle. Thermo scientific white paper 65880 an urgent need for expanded virus research

Integrins are proteins that bind epithelial cells to the matrix or basal lamina. These adhesion molecules are heterodimer proteins consisting of two polypeptide chains, α and β , linked to each other by non-covalent bonds. Integrins are heterophilic, transmembrane surface glycoproteins that bind externally to the cell matrix; and provide integration, information flow between the extra- and intracellular matrix (3).

The binding and adhesion of the virus with integrin is facilitated, and adjustments are made in the cytoskeleton. Intracellular signals are generated during integrin activation. The role of integrins at the level of the virus interaction, is still unclear.



Source: Chen, Faye & Rousche, Kathleen & Tuan, Rocky. (2006). Technology Insight: Adult stem cells in cartilage regeneration and tissue engineering. Nature clinical practice. Rheumatology. 2. 373-82. 10.1038/ncprheum0216.

Explaining the Prevention of the Virus from Spreading with Acupuncture

Viral S binds to ACE-2 on spike type-2 pneumocysts. This can be modeled as an enzyme-substrate relationship. Preventing this can prevent the virus from spreading into the cell. If points that remove pathogenic factors such as LU-7, LI-4, SJ-5 are used in this stage, by the activity of these points through microchannels; the configuration of the receptors can be changed, the binding and spread of the virus can be prevented.

Cold-Wind Syndrome

COVID-19 enters the pneumocyst-2 cells through the connections of ACE-2's on the membrane surface and disrupts the qi circulation within the lung cells. Pathogen acts like cold, causing contractions in the qi channels within the cell. Contraction causes qi obstruction and stagnation of fluid in the canaliculi within the cell. ATP production slows down. Since heat is generated instead of ATP production, there may be a fatigue and mild fever, or the fever may not appear immediately.

When the virus enters the cell, qi driving force becomes insufficient, so, the circulation is disrupted as the virus multiplies and spreads. As the stagnation augments and the cell doesn't work properly, the qi stagnation turns into fever. Intracellular fluid begins to deplete. Body fluid obstructions occur, fluid solidification (phlegm) occurs. To prevent accumulation, spleen points (Sp-3, Sp-6), earth point (LU-9) from the lung and St-40 from the stomach channel can be selected.

According to the reported findings (fever-37.5°C, cough, anorexia, myalgia, dyspnea, sputum, fatigue, headache, sore throat, nasal discharge, nausea, diarrhea, anosmia), the picture resembles a cold wind syndrome. Lungs, spleen, large intestines, stomach channels are affected. In this case, this can be considered as a Taiyin syndrome, the first cycle of the three cycles. Accordingly, yuan points, the primary qi loading points of the primordial system (Lu-9, Sp-3, LI-4, St-42) and the famous points with known effects (Lu-7, St-36, Sp-6, LI-11, LI-20) can be selected from these channels. The treatment can be applied every day.

Furthermore, Taiyin points and general immunostimulant points, which are LI-4, St-36, Sp-6 can be applied every other day for protection.

Status of Organs and Treatment Modalities

-Leukocytosis, leukopenia, lymphopenia (85%). Lymphopenia indicates insufficient immun defense against the virus and may be related to the spleen - LI-4, St-36, Sp-6.

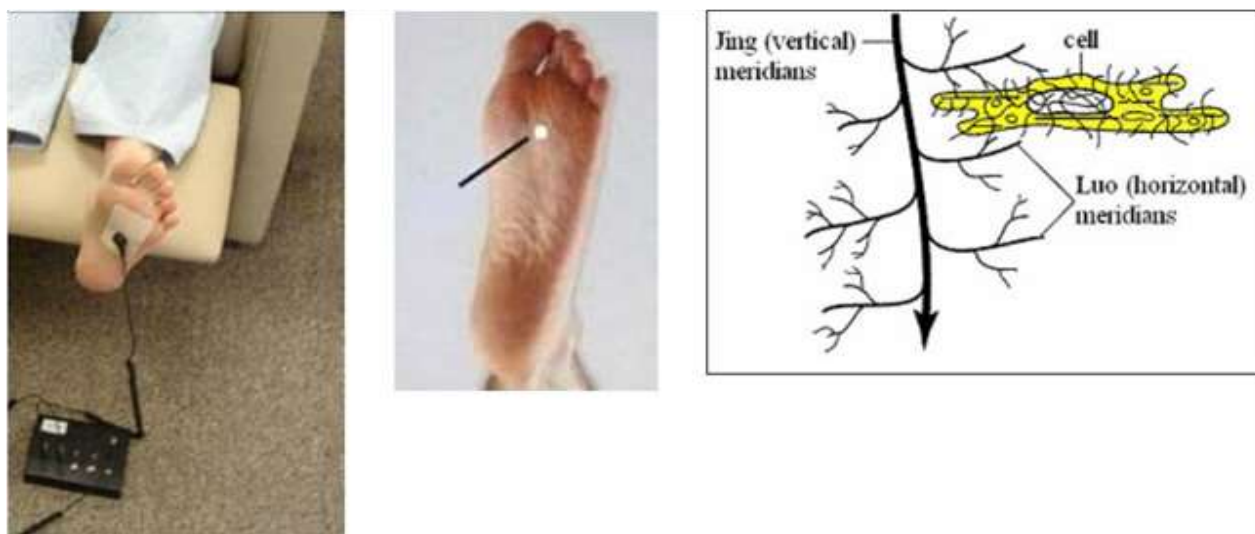
-Low albumin, elevated AST (SGOT)-ALT (SGPT)-total bilirubin levels indicate liver qi deficiency and liver cell damage due to liver intracellular qi stagnation - Liv-3.

-LDH increase indicates pulmonary and other organ damage - Lu-9.

-High creatinine suggests kidney damage- Kid-3, 7.

Treatment

Three steps to treat viral sickness with acupuncture can be provided with; controlling and preventing the changes made by the virus at the cellular level, general protective approach (strengthening the immune system, increasing interferon release, phagocytic activity, T lymphocyte count and activity, etc.), relief of symptoms.



Source: Matsumoto K, Birch S. *Hara Diagnosis: Reflections on the Sea*. Brookline (MA): Paradigm Publications; 1988.

Oschman JL. *Energy Medicine: The Scientific Basis*. 2nd ed. Edinburgh: Churchill Livingstone; 2016. p. 102.

Severe coronavirus disease 2019 (COVID-19) is characterized by respiratory failure and inflammation of the lungs. In fatal COVID-19, autopsy showed that the lungs were filled with a clear liquid jelly. However, the nature of this finding has not yet been determined. In a recent study, aimed to find out whether the deadly COVID-19 virus contains hyaluronan, as it has been associated with inflammation in the lungs and acute respiratory distress syndrome (ARDS); lung tissue obtained from dead COVID-19 patients was processed for hyaluronan histochemically and compared with normal lung tissue. Stainings showed hyaluronan in the thickened perialveolar interstitium, whereas in normal lungs hyaluronan was only present in the intact alveolar walls and perivascular tissue. This was the first study to confirm prominent hyaluronan exudates in the alveolar spaces of COVID-19 lungs, supporting the idea that the macromolecule is involved in ARDS caused by SARS-CoV-2. These findings may open the door to new treatment options, aimed at reducing the presence and production of hyaluronan in severe COVID-19 cases (10).

Hyaluronan is a useful glycosaminoglycan, that adjusts the extracellular matrix. The reason for hyaluronic acid retention in the lung alveoli may be, due to excessive hyaluronan production due to disruption and destruction in the primordial channels. From this point of view, spleen qi must be activated in the lung channels, to prevent liquids from turning into gel and molecules from aggregating.

It has been found that febrile reaction is associated with increased interleukin levels. It has been determined that decrease in the interleukin levels, and antifebrile mechanism occurs as a result of needling the H-8, Liv-2 and UB-66 points. Additionally, in an in vitro study, acupuncture was tested as monotherapy and found to reduce mortality by increasing serum interferon levels and phagocytosis of viruses. In another study, it has been shown that acupuncture increases the effectiveness of anti-viral drugs.

If the organs related to the symptoms are examined: lungs are the organs related to cough and dyspnea, spleen is related to fatigue. Moreover, spleen and lungs are used for myalgia and to prevent and removal of phlegm. The spleen, earth point (Lu-9) in the lungs, can be selected for this application. These findings suggest that lungs and spleen are primarily affected by the disease.

Dyspnea and cough increase as lung cells begin to break down. Then points UB-12, 13 are activated. If the sputum color is yellow, LU-10, if it is white, LU-5 can be added. Meanwhile, St-36, which specifically affects killer cells, is activated to kill viruses. Attempts are made to increase the leukocyte count. If dyspnea has progressed, Ren-22 can be used to try to affect the thymus gland. P-6 and Ren-17 are used to relieve pressure on the chest. The treatment can be done every day, or even more if necessary.

As a result, accepting COVID-19 as a Taiyin syndrome; Lu-9, Lu-10, Sp-3, Sp-6, Sp-9 points can be used for treatment and St-40 also creates a secondary support.

We believe that further clinical and laboratory studies should be conducted on this subject to clarify and prove this issue.

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