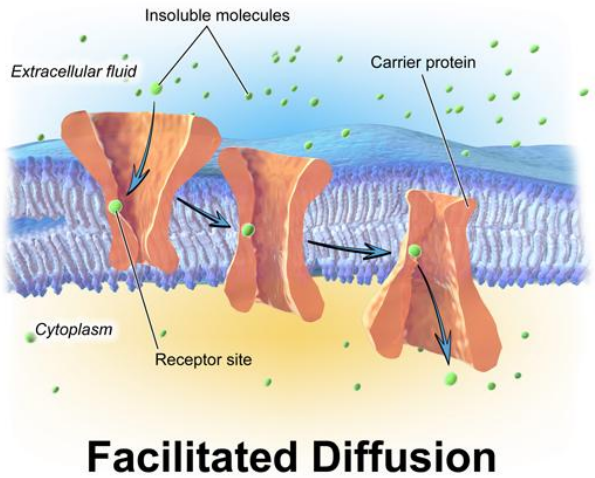
# A Theory on Stable Water Clusters and Cell Health

*Abstract: Double Helix Water® is proposed to restore membrane potential across biological cells and cellular environment. The membrane potential represents a small voltage gradient of ~-40 mV from cell interior to exterior. Many biological functions depend on this gradient to ensure proper channeling of resourceful ions into and out of the cell. It's twofold: The voltage-gated channels assist in maintaining the gradient by regulatory release of ions into and out of the cell and ligand-gated[1] channels rely on attachment of key regulatory ions to open and close. All channels are further regulated by ionic filters that prevent unwanted entrance. Both of these processes are hindered by ingestion of toxins and chemical substances that introduce ions that interrupt the membrane potential. These lead to premature cell death and decreased function that requires intervention that can potentially worsen the problem. Double Helix Water's unique electrical character shows a capacity to mitigate these unwanted ions and behave as an electrical buffer that restores the potential.*

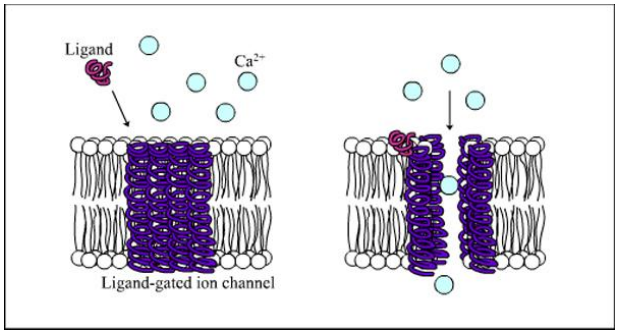
When it comes to maintaining our health and well-being, many take action only after the incident occurs. This is natural as we tend to seek a state of homeostasis[2] that only responds when one is injured or taken out of balance. This is best seen with the cells within our bodies. Our bodies draw a fine balance in cell health to permit quick responses to any incident or injury but to prevent constant over-action; our cells are designed as self-sustaining. They regulate resources intake and even regulate cell death or apoptosis[3]. This is done to maintain cellular function and to prevent a chain reaction affecting other cells' performance. Because of this, a cell's health walks hand-in-hand with overall health. Dr. Raymond Hilu, among other medical professionals showed this in the *Forum on Immunopathological Diseases and Therapeutics*. Many ailments begin with decreased cell function and proper treatment seeks to reverse and repair this malfunction.




In order to understand how the cells can start to malfunction, we need to first understand how cells are most intimate with their environment. Nutrients enter the cell through ionic pumps and channels that act as gateways into and out of the cell. Ionic pumps work against the concentration gradient and are highly

controlled but ionic channels behave much more passively. The two major forms of ionic channels are voltage and ligand-gated channels. In voltage-gated channels, a cell opens to the outside when there is a disparity in the typical charge gradient of the cells interior compared to the exterior. This is known as a membrane potential and can range from -40 mV to -80 mV to allow for some variance but also permit a quick response should the cell need to adapt. With voltage-gated channels, this response is in the form of the channel opening to allow ions to flow freely and cooperate with other channels in restoring the membrane gradient. This interaction is amplified by the presence of multiple cells, allowing the cellular environment to react to charge gradient stresses.

In ligand-gated channels, a regulatory ion must be present to attach to the channel and open it up. Once the wanted ions are moved, a regulatory signal closes the channel and the regulatory ion detaches.




In both cases, it is important to remember that charge separation creates a gradient that permits a delicate ebb and flow of ions into and out of cells. The membrane potential is maintained on the scale of millivolts to prevent excessive interaction with the exterior and with other cells. In a way, this potential is crucial in defining cellular health on an individual cell scale and overall cellular environment health.

As we ingest substances, it is common to find toxins and unintended chemicals introduced into this cellular environment. Small amounts can be easily dealt with and outnumbered by the number of cells affected and these ion transports can assist to restore balance by releasing ions as necessary. However, it is when excessive consumption of such substances occurs that the body can find itself pushed out of homeostasis. Toxins and chemicals can interfere with the membrane potential, effectively opening voltage-gated channels, allowing undesirable ions to enter cells, or preventing ligand-gated channels from opening and denying the cell essential materials. Presence of heavy metals can create excessive external charges to persist, further draining cells of needed ions as the membrane potential is compromised. This cellular stress can lead to the destruction of cells and decreased cellular function. In order to remedy this situation, two events must occur: Removal of the toxic components and restoration of the cellular membrane potential. Changes in diet or medication can assist in these but

often serve as a temporary solution because the new stresses are introduced which commonly lead to new challenges to the cellular environment. Instead, natural solutions are preferred and we must moderate the amount of new toxic substances.

Ideally, we should be able to introduce a component that would be 1) Natural to the cellular environment and 2) able to interact with excessive ions and 3) restore the membrane potential through non-destructive means. Double Helix Water has been shown to have charge character based on its 8 water molecule structure known as a stable water cluster. The nature of water is to create a dipole with a positive and negative region and 8 of these dipoles stack in a concerted structure that accentuates the regions. This robust crystal of water can behave like an electrical buffer, attaching to ions long enough to separate them and allow more stable water clusters to interact. The effects are two-fold: cells are reset to a normalcy that allows the cell to function correctly and healthily and the foreign electrical factors (excessive ions or free-radicals) are neutralized by a water structure. Stable water clusters serve as a lightning rod for these chemical and toxic strikes, diverting them from interfering with the normal processes of the body and allow the body to repair itself.

Self-healing begins, like most healing, with imbalance. The body relies on signals to cue repairs and many times this goes on without us being the wiser. When it comes to cellular health, the sheer number of cells that must be maintained would dizzy anyone, leading to only reparative measures being taken. Stable water clusters are theorized to serve in this role without bringing more harm to the body by tackling the issue at the electrical level, where the machines of our cells begin to malfunction. Many treatments overlook this level of repair. Rather than fix the problem, we often destroy the cells and start over. Stable Water Clusters offers a chance to restore a very basic malfunction while not interrupting the normal cellular process.

It is in this way that healing should occur and it's not a stretch to do what the body aims to do already. Sometimes, it just needs a little helping hand.

[1]***Ligand:*** *A substance that forms a complex with a biomolecule to serve a biological purpose. (Wikipedia)*
[2]***Homeostasis:*** *The tendency of a system, especially the physiological system of higher animals, to maintain internal stability, owing to the coordinated response of its parts to any situation or stimulus that would tend to disturb its normal condition or function. (Dictionary.com)*
[3]***Apoptosis:*** *A normal, genetically regulated process leading to the death of cells and triggered by the presence or absence of certain stimuli, as DNA damage. (Dictionary.com)*