



GLYCANS AND GLYCOPROTEINS ON THE SURFACE OF A RED BLOOD CELL

GLYCOSCIENCE

The New Frontier of Medicine

**GLYCOSCIENCE explains
cell COMMUNICATION:
key to all life - human,
animal and plant.**

A whitepaper by **JC Spencer**
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**Glycoscience / Glycobiology is
the study of biological sugars.**

**These sugars form glycans
on the surface of cells. Glycans
are the keys that unlock DNA code.**



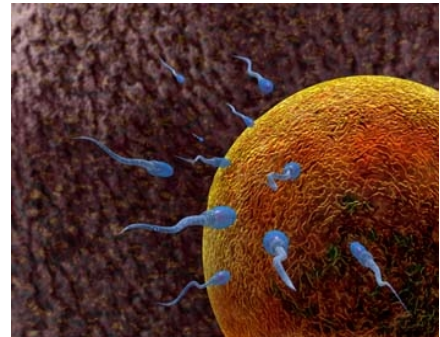
GLYCOSCIENCE

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Communication

You started communicating even before you were conceived and here's proof. In the beginning, you were a cell, yes, you were two cells. The sperm from the father and egg from the mother were coated with a communication system. They came into agreement when the sperm impregnated the egg. The two cells became one. Signals from the egg were immediately switched to a new message proclaiming to other sperm, "*Leave me alone. It's too late - I'm taken.*" The two cells became one... a stem cell. Your life began.



Every healthy baby is the result of correct communication as the cells divide and every component of the new life starts to form.



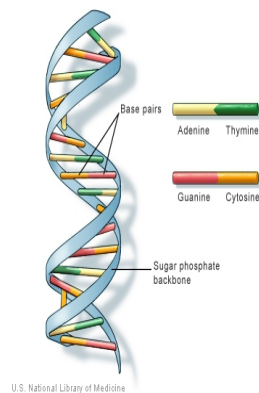
A split second of non-communication or faulty communication during the nine-month gestation period can cause deformities such as spina bifida.

Every ailment, every disease, all sickness, virtually every problem in life is the result of faulty communication.

Just as good communication in our conversations and writings give life and color to our thoughts and intents, it is communication that makes everything work, sustains all things, holds all things in place, from astronomical to subatomic particles. It is communication between gravity and centrifugal force that holds a planet in orbit. So is the electron held in orbit by the nucleus of the atom.

When a part decays or comes unglued, it has the potential to become a shooting star, a meteorite raining ice and fire down to destroy everything in its path. On a subatomic scale, it may become a free radical, causing inflammation, which is the final killer in most deaths.

During the last two decades I have lived and breathed the science of how our bodies, our minds, our cells communicate. I am privileged to do research, make discoveries and have had several papers published regarding the importance of these sugars.



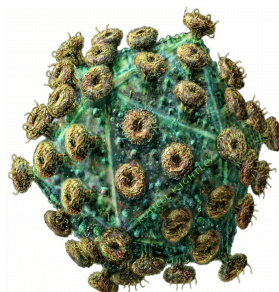
I have gleaned knowledge from over 700 MDs, PhDs, scientists, researchers and educators in the field of Glycoscience and brain function.

The Virus

Early on in my studies I was fascinated by a significant example of false communication that causes so much havoc in the human body: the virus.

The virus is a key counterfeiter.

A single virus is a tiny evil commando that appears dead. It does not eat, secrete, or propel itself. It is unable to reproduce without the aid of a living cell.



HIV/AIDS virus

The virus implements its evil plan by communicating to the cell,
“Don’t reproduce yourself. Reproduce me. Here is my DNA.”

Viruses seize key positions on the surface of the cells.

Some viruses attack and disable their victims with cruel speed while others take years to harm their host.

A virus, as in guerrilla warfare, can lie in wait for a more opportune time when your immune defenses are lowered.

Operating System

Every computer has an Operating System to process data. The OS of your body is light years ahead of the design of the fastest manmade computer.

The OS oversees and directs production of your ever changing body chemistry. Using your DNA some 50 to 100 billion new cells are manufactured every day.

When the OS of your computer becomes corrupted, your computer becomes dysfunctional. Likewise, when the OS of your body becomes faulty, your DNA processes errors to produce corrupted unhealthy cells.

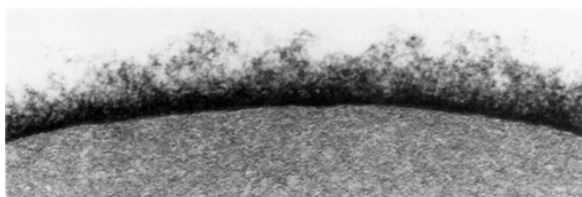
There may not be hope for your computer but there is more than hope for your body’s OS. Glycobiology has opened our understanding to the biological function of sugars that are used in the construction, maintenance and repair of your OS.

Some 800,000 transmitting antennae sugar coat each healthy human cell like fuzz on a peach.

Glycans and Glycoproteins

The new and perhaps last frontier of medical science is the ultrahigh technology breakthrough in the branch of biology called Glycobiology or Glycoscience. (Glyco is Greek for sugar). Indeed, Glycoscience is the future of medicine. MIT is on record of saying that Glycoscience will change the way we live.

Some 800,000 transmitting antennae sugar coat each healthy human cell like fuzz on a peach.



These antennae are constructed from mannose, fucose, galactose, xylose, N-acetylglucosamine, glucose, and variations of other Smart Sugars.

Each antenna is a glycoprotein or glycan. A glycan is a tiny tree-like structure of different sugars linked together. A glycoprotein is made of sugar and protein links. Without glycans, the cell cannot live. Because these glycans actually give us life and intelligence, I dubbed them, “**Smart Sugars**”. I discuss these ever so special sugars in my book, Introducing SMART SUGARS.

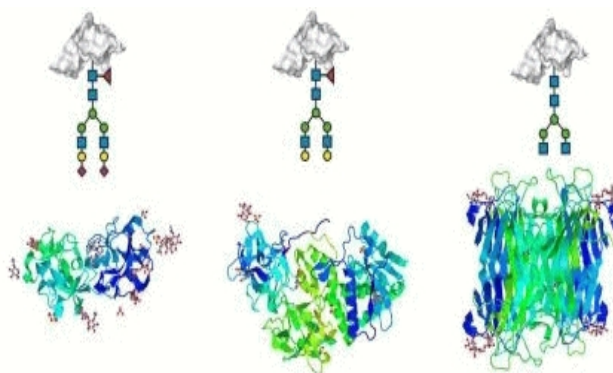
Immune Modulation

Faulty signals can render your immune system dysfunctional. It may become weak and defenseless or conflicting signals can cause your body to prey on itself as an autoimmune disease.

A newborn baby is required to have a balanced and modulated immune system to survive and thrive. The mother provides colostrum and milk to do just that. Nursing babies receive an abundant supply of these Smart Sugars that can be of benefit throughout adult life. Multiple studies verify that children who receive mother’s milk are smarter and healthier.



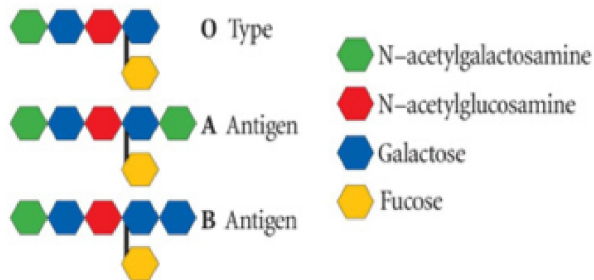
Harvard University recently published a study that concludes that children who nurse for twelve months have a four point IQ advantage over children who nurse for only six months.



The above graphics of glycans/glycoproteins indicate the folding of sugars and proteins. Proper folding provides the human body with good neurological function of mental and motor skills. Misfolding is the cause for neurological dysfunction.

The glycome may be millions of times more complex than the genome. An untold number of significant folds within each glycan x ~800 Thousand glycans per cell x ~70 Trillion cells in the body gives us a glimpse of the complexity. Add to that equation the fact that 50 to 100 Billion new cells each day are manufactured in your body. Research shows that the sugar Trehalose is beneficial in proper folding of proteins.

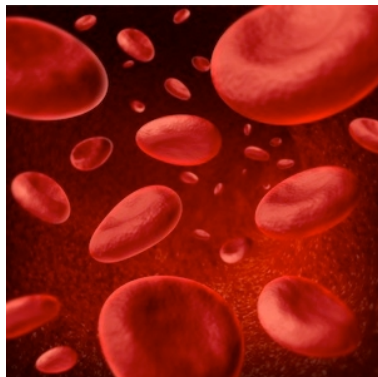
Smart Sugars are the Building Blocks for Quality Blood



Placement of one sugar determines blood type.

Life is in the blood and your blood is unique to you. There are four basic blood types: A, B, AB and O. There are thirty human blood groups now recognized by the International Society of Blood Transfusion.

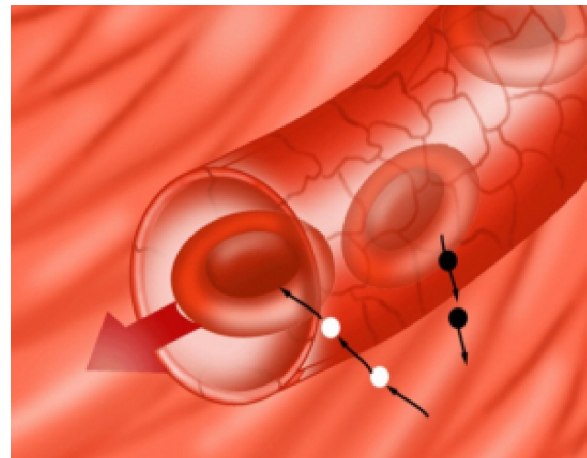
Each blood type is determined by how the Smart Sugars are arranged on the surface of the cells.



Better Blood Mobility Through 100,000 Miles of Capillaries in Your Body

Red blood cells with a high population of glycans also have greater flow mobility.

Glycans make the cells slipperier and able to travel more easily through our ~100,000 miles of blood vessels.



This lubricating factor alone holds the key to improved health while delivering Smart Sugars and nutrients to your cells, especially through the finest of capillaries which restrict blood flow to single lanes, single cell width.

Stem Cells

The sperm and egg became your first stem cell. Stem cells divide to manufacture more stem cells or produce differential cells to produce every organ and designated part of your body.

Healthy young people have more stem cells and more glycans. Healthy blood has more glycans and is able to produce more stem cells than blood with less densely populated glycans.

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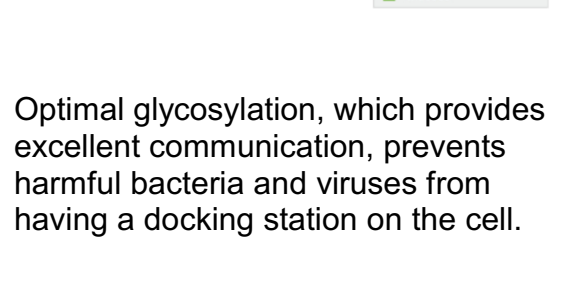
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To form glycans or increase the number of glycans on the surface of cells is called “*glycosylation*.”

Glycosylation and verification of the increase of the quantity and quality of glycans on the surface of cells is called “*Optimizing Glycosylation.*”

Manufacturing a single antenna by linking specific sugars a certain way is a monumental task. Your body may manufacture 80,000,000,000,000,000 (80 quadrillion antennae each day.)



Key to Everything: COMMUNICATION

Improving Cell Glycosylation was Scoffed at for Decades - Now it is Proven Conclusively

Every significant scientific organization and association went on record in 2012 that: ***“Glycans impact the structure/function of every living cell in humans, animals, and plants.”***

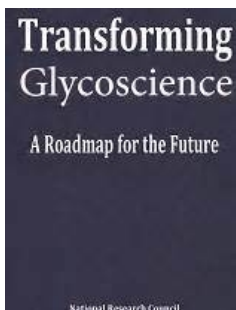
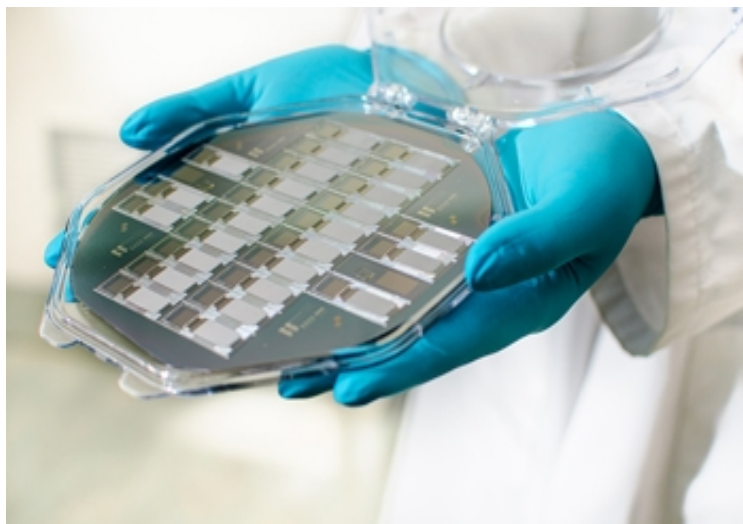
A panel was appointed from The National Academies: The National Research Council, National Academy of Science, the National Academy of Engineering, the Institute of Medicine, the National Research Council, the National Institutes of Health, National Science Foundation, and the Food and Drug Administration to write **Transforming Glycoscience - A Roadmap for the Future.**

The Future

Traditional vs. Integrative Medicine
Glycoscience disruptive technology will forever change our medical system.

Traditional medicine will use sugars synthesized to make drugs work better.

Integrating natural specific sugar supplementation into daily consumption of food will increase glycosylation of cells to produce more stem cells which are designed to maintain and repair. Glycoscience reintroduces the values of the Father of Medicine, Hippocrates, who said, ***“Let food be thy medicine and medicine be thy food.”***



Tomorrow's Doctors

Doctors of tomorrow will better understand Glycoscience than today's generation. **Transforming Glycoscience** recommends that all university and high school science departments teach Glycoscience.

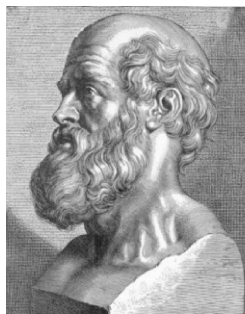
Tomorrow's Doctors will confirm the benefits of Smart Sugars with advanced Glycoscience Diagnostics to evaluate the glycans for determining what the patient's health will be years in advance.

Glycoscience makes for good communication. Good communication makes everything happen.

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