Energy and Epigenetics 7: The Epigenetic Toolbox

Readers Summary

1. Why is epigenetics a black box to biology?
2. Why is modern healthcare disconnected from epigenetics but still married to genetics?
3. What forms he human epigenetic alphabet?
4. How did viral marketing form out immune system and brain in one move?
5. How are cystic fibrosis, iodine, ketosis and transitional chimps all linked?

Epigenetics is where modern systems biology intersects with quantum mechanics. It is a meta-discipline. What does this imply? It means that to truly understand epigenetics power in biology, you have to embrace many disciplines of science. For me, it took going back to eight basic sciences and then layering in alternative medicine, convention medicine, convention research, material sciences, astrobiology and geology. Epigenetics provides a new framework for the rules of heredity. When the rock band The Who asked you who you were in their music 30 years ago, few had the answer in biology, so they just guessed and filled in the gaps of who we were as a species. They got it really wrong. Dogma is a bitch like that. The result was that diseases of aging became diseases of mid-life in modern humans. Our elder years are now spent on medical support, pharmaceutical support and much earlier life support. This is not the life most want to live.

As long as you are willing to ask yourself harder questions than the answers you currently have, you are breaking through; but the moment you begin to accept things as they are, you are psychologically dead. Do not pursue what should be, but

understand what is present around you today. That is the question that epigenetics asks itself every second of everyday DNA or RNA are working in our cells. Become aware of the implications.

Ultimately, we are who we are when we conceptually marry our relationship with neolithic diseases to our personal and societal responsibility for wellness. Modern healthcare does not understand this connectiveness.

DNA IS NOT OUR DICTATOR, IT IS ANOTHER ORGANELLE IN THE CELL THAT PHYSICS DIRECTS

Voltaire allegedly said, "Doctors are men who pour drugs of which they know little, to cure diseases of which they know less, into human beings of whom they know nothing." Maybe he overstated the problem. Maybe he didn't. **The science of epigenetics makes clear that our DNA is not our destiny. Our modern beliefs are usually the cause of our epigenetic decline.** We need to fully embrace that the human mind is a wonderful servant but usually is a horrible master, because it allows us to deviate outside our epigenetic mechanisms to cause disease. I believe it is the mark of an educated mind to sow doubt and disruption where dogma lives. Today, medicine is hanging its proverbial hat on dogma it calls "*evidence-based*" that has divorced itself from most epigenetic mechanisms. Evidence-based research is looking at data over a population and then taking that generalization and applying it to a treatment algorithm for a person. This is a Rx for mediocrity. In my view, espousing for moderation or normality is not something to aspire to, it's something to get away from when you understand how epigenetics really acts. The difficulty lies not so much in developing new ideas as in escaping from old ones. I'm still a modern physician and still a man of science every bit as much as I was before I had my own "patient experience." But on a deep level, I'm a very different from the person I was before, because I've caught a glimpse of this emerging picture of the reality of epigenetic

power. And you can believe me when I tell you that it will be worth every bit of the work it will take us, and those who come after us, to get it right. **Biology always makes sense, if we see it from its perspective and not our own.**

DNA and RNA simply establish the initial conditions for how the cells that comprise our body communicate and respond internally and externally with our environment, primarily through the action of proteins. The motor of life is fueled by thing in nature capable of coherent energy transfers. Epigenetic models have already establish that our cellular structure can be modified by thoughts, perceptions, beliefs, environment, diet and behavior, thus determining who we are, how we respond to disease, what we are and in many ways, what we will become. When you understand this, it becomes clear how energy transforms all matter and ending all aspects of disease becomes a much easier task to understand.

The Epigenetic Alphbet Forms the Human Library of Progress

It appears that by studying the difference between primates and human DNA, we find many striking differences in body composition and comparative anatomy, but what has occurred in our retrotransposons, gut, brain and spine confers massive alterations to the 150-million-year-old mammalian body plan that was well conserved in eutherian mammalian adaptation. **The alphabet of DNA between us and other primates is based upon 64 possible words.** These letters are coded for by base triplets (Brain Gut 3) that code for amino acids and they are identical between us. For biologists who believe in genetic determinism, this finding from the human genome project has been problematic. It showed them their theories that genes controlled our ultimate cellular destinies were dead wrong. This data should have revealed a deeper truth about how life

really works. It is not just that there is one universal language based upon this very same alphabet across all species, but that there is a single dialect of a single accent within this biologic language.

This should have been a big clue that DNA is not where the answer for wellness will be sowed. The universality of DNA is completely staggering across all species of life. I believe the reason we evolved the RNA/DNA protein mechanism universally across species is because it is the ultimate way biology can categorize the storage and processing of massive amounts of information from our environment.

Living in our epigenome is how the history of our species was written. Today, most people would rather live in their illusions of how they believe it might have happened. Mother Nature has provided life a spectacular biologic toolbox to build new traits and animals based upon the variables Earth throws at life overtime. The toolbox exists in our DNA, but is expressed in a much more sophisticated pattern I have yet to explore for you. It is buried in our non coding part of our DNA called retrotransposons. I first introduced them to you in Brain Gut 2.

The human genome is the first draft of what we might be, but our life experience within the environment we choose to exist is where the final draft of our book is written. An architect far smarter than us has given us that epigenetic toolbox, and we now have the ability to use it by altering our behaviors to change our lives and reverse diseases. That is the story line is being written on modern epigenetics.

The beauty of the basic evolutionary design plan is by being able to write for a genome and plug it into any organism evolution provides and watching the software, if you will, change the structure of the hardware to allow us to adapt to any environmental trigger life faces. If that sounds hard to believe, modern experiments have shown one gene product from

one triplet of a fruit fly can be expressed 40,000 different ways to act. That is the power of epigenetic diversity. What gives the final result? The recipe of the three laws of the universe found in EE 4.

We must remember that Brain Gut 1 told us that humans, chimps and gorillas are very similar genetically but very different morphologically. That implies the major differences between them was forged by epigenetics, not genetic alterations as most biologist believe today. In Brain Gut 2, we saw how Mother Nature pulled that off by using 'viral marketing' to shuffle our genome with retroviruses. Biologists used to call this junk DNA, because they had no clue what its real function was.

These retroviruses are what ultimately formed our non-coding DNA that has the control of our epigenetic program of software. These facts now cause us to accept that our epigenome is a loaded gun for our species, and our environment is the trigger. Your lifestyle cannot change you. However, it reveals who you really are.

The genome only codes for and produces gene products which are proteins. As evolution has progressed, we have added generations of control systems to control these proteins' behavior, which are designed around the ability to move energy into newly evolved systems via natural selection pressures all dictated by epigenetics. Epigenetic expression is determined ultimately by energy dynamics in cells. Energy is utilized in all of biology, by fractal design as I laid out in EE 6. The most 'expensive' energy systems are fed last in this fractal epigenetic system. **This means evolution's newest creations in our species would be funded with energy last, after the more vegetative functions were filled first, just like how energy is allocated in an atom.**

Energy balance for all life is really a zero sum game. Too much or too little causes problems for the way a quantum cell

is set up. This is really the definition of what metastable really is. There are negative consequences for excess or deficits either way. This is why one can be leptin resistant while obese and razor thin because of anorexia. All life uses this “quantum cell theory” to be metastable. As long as energy is balanced within the cell systemic capabilities, things work well physiologically.

Transitional Ape to Human: Regeneration vs Longevity

As evolution has gotten more complex, it uses more ways or designed systems to capture and transmit energy. Simple life forms, like salamanders for example, do not need an immune system because they can regenerate just about their entire body from scratch. They are able to do this because they have a huge amount of DC current below their myelin layers and outside their axons. Salamanders, however, are not complex animals at all. The biggest reason they have a huge DC current is because they do not have a huge complex nervous system. A huge complex nervous system requires the ability to partition energy well, in the form of the DC current, to fuel and energize other newer designed system. Up until primates evolved, there was enough energy to do this relatively easily within the mammalian body plan.

As life got more complex on the tree of life, from a salamander to a chimp, something else happened. With the loss of regeneration potential, life stopped living a long time. More evolutionary complexity began to shorten lifespan. Salamanders can live a real long time because they can regenerate limbs, body parts and even their brain. Chimps only live in the wild until 15-30 years old. Check out this article from the Scientific American on why humans live so long to see how in the dark biology is on these facts. In fact, you will find on the tree of life, the more complex it gets, the

shorter life seems to live while it evolves on land. This rule was broken with humans. Sometimes lifespan is increased by using Kleiber's law. We see this in sea mammals, elephants and sea amphibians that feed on the marine food chain.

But chimps live and eat differently than those animals, and yet, they are clearly our nearest ancestor genetically speaking. 95% of their diet was from fruits filled with fructose. Only 5% of their diet came from meat or the marine chain. The chimp brain was far advanced, compared to a salamander, but is far removed from ours. Since energy partitioning within evolution is a zero sum game, the mammalian body plan was about at its maximum ability within the primate clade of mammals when it got to chimps. If their biology got any more complex based upon their body plan, they would have had to trade complexity for lifespan. This is what got evolution to act epigenetically to form us from them. This is a trade that evolution would never make because it is all about passing the genome to the next generation. This was a situation that forced natural selection and epigenetics to act.

What was the Next Step in Primate Evolution to Solve the Lifespan Conundrum?

It was to develop a neuro-immune system that could protect the most recently developed primates from what killed them and limited their lifespans the most. Infectious diseases was their biggest risk; as they aged it became their biggest risk of death. Primates reached into their epigenetic toolbox I mentioned in Brain gut 2, and came up with the **MHC 1 gene** to change their conditions of existence with respect to longevity. **It turns out that hominid neocortical development was a "side effect" of developing a tremendous innate and cell mediated immune system to live longer!**

Most humans today would find this hard to accept, but the epigenetic sculpting or our immune system was the real reason

humans got their brain. Since life in the primate tree was shrinking, because they were topped out in their ability to partition energy, based upon their conditions of existence in the forest eating nutrient-poor diets, they just did not live long. Even today, chimps in captivity or the wild only live to 13 years on average. They are our nearest ancestor and we have gained a huge survival benefit compared to them. This expanded further in the 20th century because of our ability to alter our immunity with drugs and vaccines.

What Drove Primates to Homo Evolution?

Life needed a way around its limited lifespan in the primate tree that stalled. Since it no longer had a strong DC current to rely upon for longevity, because the primate neocortex outstripped the energy supply of its carbohydrate diet, it came up with a new plan. **Evolution is not just one single process that follows a linear progression**; this is how modern humans view genetics, but evolution is a complex collaboration of many processes and techniques, called epigenetics. **Evolution is not inventive, but it is innovative.** It uses what it has at the time an environmental pressure shows up. **When primates got smarter, they died sooner.** This was the environmental pressure that was needed to find a new way to longevity. So where did it go to get that ability?

Spare Parts

It went to the epigenetic junkyard of retrotransposons you learned about in Brain gut 2. Retrotransposons are non-coding parts of our DNA made up from viral genes. We used to call them junk DNA. Here it found the parts from viral genes to make a new gene called the MHC 1 gene. I told you the environmental pressure that first drove primate to hominid evolution was the change in climate, from warm and muggy to

wet and cold in the Brain gut 3 blog. This altered primate foot and ankle anatomy to a more human foot first to navigate life on the floor of the forest from canopy of the trees. The food no longer was in the trees, because for a small group of primates, the sea now flooded their habitat in the East African Rift zone. We covered this ecological process in detail in the Brain gut 4 blog. The food required us to adapt to a water-based existence, and many body plan alterations occurred quickly to the mammalian body plan before we saw any brain case changes. But the key change was in creation of the MHC1 gene from all the viruses these primates were assimilating from their naturally leaky guts. You might want to review Brain gut 2 here, before going further.

Primates inherited the HERV one mutation, and this made their guts more leaky to more pathogens. These pathogens, ironically, are what was ultimately limiting their life spans. But this environmental pressure also contained their answer to their longevity issues. Here is where primates created the MHC 1 gene from viral spare parts. This is where humans really come from. It was the primordial change that carved us from them.

What Does the MHC 1 Gene Do?

The MHC 1 gene allows for a complex innate and cell mediated immune systems to develop. This initially allowed the primates to live longer because they could fight off pathogens better to live longer. This allowed them to overcome the "ceiling" of their own DC current, which was no longer able to expand its reach much further because of its energy block. But this gene had another effect as a "collateral damage" effect. It also allowed the primate neocortex to expand further than it already had.

It turns out the MHC 1 gene also directs neurogenesis in the central nervous system in all hominids and in humans. This has

shocked most biologists when the data and experiments on neurogenesis showed it to be 100% true. When this gene was crafted by natural selection it was done to improve longevity of the primates. When the environment changed to a colder wetter spot in the East african rift zone, it opened a small group of primates to be walled off from the forest who had to eat seafood to survive. We covered the details of this in Brain gut 3, Brain gut 4, and Brain gut 5. Go back and reread them all now.

This dietary change increased the amount of energy into the primate body plan, and the energy was distributed in fractal fashion, as you learned in Energy and Epigenetics 6. This means that the excess energy from our new diet would have been allocated to the newest systems by evolutionary design to fully develop it. With time, these systems became the modern human immune system and the human neocortex.

As I laid out in Brain gut 5, the environment these hominids evolved in had to have a substantial and constant source of energy to develop these two systems over 4-6 million years. History tells us it was a smashing success. Chimps today still only live 30 years on average in the wild or in captivity. Humans now live 78 years on average. Just 150 years ago humans only lived 30-35 years and they tended to die from infectious diseases most. In the early 20th century, our brains have allowed us to figure out how to squeeze out another 30-40 years by avoiding infectious diseases by developing antibiotics and vaccines. They were the main reasons we saw lifespan expansion in humans in the 20th century. Today, we have lost sight of their benefits. We blame them as the cause of modern plagues because we fail to realize the biologic impact of our choice to use nonnative EMFs to developed modern technology we all think are necessary. These non-native EMFs act to rob our immune system and our neocortex of the energies we relied upon for their evolution to be complete. Today, those two latest evolutionary systems are failing us in a big

way. This is why neolithic diseases, like neuro degeneration and autoimmunity, are exploding today. It is all understandable when you understand QED fractal energy utilization that was laid out in Energy and Epigenetics 6.

This is why the "field effect" is critically important for you to understand. It is levee one in the Quilt.

The Primate Gut

I believe our ancestors' leaky gut allowed us to harness the energy in new food sources. This increase in energy cause the structure of the primate gut to shorten and change its structure. This is a quantum effect you heard about in EE 6. We took it further to fuel full application of the MHC 1 gene. We shortened the gut and began to use the gut microflora to drive most of the morphologic changes we see in modern man today, compared to primates. The gut shrunk, the immune system got complex, and the brain grew. This lead to a huge expansion in life span at the end of the primate tree and into its hominid branches.

It appears we use the gut microbiota to be our "sixth sense" for environmental epigenetic adaptation. It is inside us but works like a second solar panel in our insides. It collects light released from the microbiota, and uses its H_2 gas to help limit the hydroxyl free radical. When H_2 is altered autoimmunity via the gut is much more likely. This ties to proton tunneling around the MHC1 gene and its epigenetic expression. Water chemistry around this gene is incredibly important in humans. I think this is a rather ingenious use of bacterial/viral life to our advantage. Remember this is an 'old page' from the evolutionary playbook. We assimilated a bacteria via endosymbiosis to form our mitochondria to make ATP billions of years ago as well. Evolution follows a fractal design plan, where form always meets function. It then takes the energy it finds from the environment, and it fuels the

newest system development. This is why we began to lose our fur, why we sweat to cool off our semiconductors in our head to increase the current of flow, and began to use energy to drive the structural changes in our proteins in the newest system of development from the MHC 1 gene … neurogenesis. This is why the brain exploded after all the other changes were first made to the mammalian body plan. I laid this all out in the Brain gut 3, Brain gut 4 and Brain gut 5 blogs.

Immunity and Lifespan

If this idea is plausible, we should expect the appearance of a few new adaptations to appear in the fossil record before brain growth: One should be bipedal gait; and the second should be an altered immune system in the HLA and KIR sites in cell mediated immunity of the Gut Associate Lymphoid Tissue of primates. The reason we should see these first before encephalization should be obvious now. Guess what? That is precisely what we have found.

1. Dwindling forests means less food, less food means less energy, the new cold and wet environment primates were forced into meant the food would have been terrestrial based and not arborial. It means they would have been eating higher fat and protein levels over the less nutrient dense carbohydrates found in tress. Guess what the data shows? The fossil record of **ARDI** and **LUCY** say bipedalism happened before encephalization. This aspect of my model is not controversial at all today.
2. But what about the immune system alterations that would have had to happen to allow these apes/chimps to rapidly alter their gut flora to eat foods they were not used to eating? This is more controversial, but there is a lot of support for my model in today's literature.

You maybe thinking how could we ever know about the immunity issue, because theses apes immune systems are not capable of

becoming fossilized? Right? Or can we? Can we actually know what happened to primate guts? Today, we can, because of molecular genetics and epigenetics. We got this data from the human genome project and the primate genome data. We know that hominid guts shortened tremendously from Dr. Milton's work on evolutionary morphology of primate guts in their clade. Many experts have focused upon the length and the morphology as key tenets, but neither one is the major factor in human evolution, in my opinion. They are just consequences of the real game changer event from our transition.

That change was fully developing the MHC 1 gene to allow for the co-evolution of the gut microflora that sculpted the immune system via the leaky gut of these transitional apes. The MHC 1 gene was the game changer.

The MHC 1 Gene, at its Genesis, was HERV K Retrovirus

The driver for this epigenetic change, was a loss of lifespan in primates as they lost their ability to regenerate. Remember, Becker found in humans that the only tissues we humans can regenerate is bone and our finger tips if they are avulsed. Chimps do not regenerate well either, compared to Becker's salamanders. Since MHC 1 showed up in the hominid genome, those primates began to live longer because their immune systems became stronger. As they became stronger they simultaneously ate more seafood and began to concentrate DHA and EPA in their tissues. DHA is concentrated in the brain. Since the MHC 1 gene also controls neurogenesis, we saw a quick massive expansion of the hominid neocortex. In fact, even today, on the primate tree, we are the one primate who routinely lives long. Even today, chimps still die way earlier than we do. Life is about survival, and living longer is part of the ultimate evolutionary plan.

The development of a complex immune system was how Mother Nature expanded lifespan in the primate tree. Ironically, the

human and primate genome projects have shown us they have 99.8% the same genome we do. This is another tie in to Energy and Epigenetics 6, to the deep implications of how energy is partitioned in QED. **The key genetic difference between the species is found in our non-coding portion of our DNA**. This is the part of genome of how we control epigenetic mechanisms to live longer compared to other primates. This is the area where MHC 1 has been fully expressed in humans.

This all started with the HERV K retrovirus that made primates more likely to harbor latent virus that did not cause disease in them. They later became collectors of the retroviruses because of their leaky gut and they used the genomes of the viruses to expand and build their own on the X and Y chromosome (read this!)! It turns out that HERV K insertion anywhere into the human genome now causes massive genetic variability in the creation of new jumping genes.

These genes use ELF EMF frequencies to jump to parts of the genome in need of spare parts to adapt to new environmental triggers. This is how epigenetics begins in humans. What every electrifies and magnifies the HERV K genes has the power to change our epigenetic expression in a few hours. This ability was passed onto to hominids, and it is what drove us to human from ape. Here is more support of the idea.

The oceans on planet earth are the largest source of viral particles, and this means that food sources from the sea would have been loaded with these retroviruses to become our future jumping genes that fueled the massive brain growth yet to come in hominid evolution. Indolent host viral persistence allows the vast viral creative potential of the oceans to contribute to the genesis of any new host evolutionary adaptation. **It becomes our toolbox for spare parts when we need to adapt.**

Let us consider the oceans as the vector and a partial food source for transitional apes. The oceans are a vast melting pot from which all life has evolved on this planet. Oceans are

extremely electron dense and carry massive food chains loaded with energy. Few of us are aware that the oceans are also a vast and ancient viral cauldron on our planet. In fact, recent estimates suggest that the combined oceans contain about 10 to 31st viral particles, mostly consisting of large icosahedral double stranded DNA viruses. I know that number is hard to conceptualize in words, so let me give you visual analogy. The diameter of each virus is about 100 nanometers. If we lined up all the viruses side by each they would be longer than the universe is known to be wide as of 2013! The universe is 10 to the 24th meters for those counting.

Transgenerational Epigenetics in Humans: The Basics

So since we had a vast source of viral parts to fuel a new species, who also happened to have a leaky gut by evolutionary design, this allowed for easy egress of this transposable genetic material to assimilate into its own DNA. This gave hominids the ability to create massive "deck shuffling" of our non-coding DNA to create the answer to the longevity problem in chimps. In this shuffle, we created the MHC 1 gene, and we created complex DNA methylation and histone deacetylation programs that work in concert with environmental electromagnetic frequencies to control genetic expression. **Early hominids found themselves in an environment loaded with iodine, DHA and seawater, while sitting on top of 3 active tectonic plates for 4-6 million years exposed to a stronger magnetic field. Why do humans need iodine at its core compared to its nearest ancestor the chimps?**

It turns our sufficient dietary iodine is crucial for proper ketogenesis in our liver and in our brain for full immune and neural development. Iodine is critical for the Grothoss mechanism. Ketogenesis is needed to make a hominid brain at a foundational level as you learned in Energy and Epigenetics 1

blog. Iodine however, does a lot more to humans than most realize.

Iodine, Estrogen and Ketosis: The Wake-Up Call for Menopausal Women

Iodine is the link back to autoimmunity and the neurogenesis connection of the MHC 1 gene. Iodine absorption falls in the human gut when estrogen levels rise from any cause. This helps explain why women have much higher rates of autoimmune diseases like Multiple Sclerosis and hypothyroidism than men. It also explains why women have less myelin formation than men in adulthood. Remember from Energy and Epigenetics 1, we must be ketotic to make myelin in humans. Women have less iodine absorption by design. Women have higher estrogen levels to bear children. Lower levels of myelination allow women to be "more sensitive" to environmental triggers to pass that information to their offspring's DNA. Myelination also happens to be a proxy for mammalian regeneration. This was proven by Robert O. Becker, as set forth in his The Body Electric Book. This now explains why women also make T2 thyroid hormone from their ovaries and breasts. This helps them offset their decrease ability to absorb iodine from their guts.

Biology Geeks: Until recent years, T2, because of its very low affinity for thyroid hormone receptors (THR), was considered an inactive metabolite of thyroid hormones. However, several recent studies indicate that T2 is more important than originally thought. In fact, **T2 is necessary for production of the deiodinase enzyme that converts the less active T4 into the potent T3 in the body.** Early studies on diiodothyronine revealed its ability to stimulate cellular/mitochondrial respiration during the activation of the Pentose phosphate fat burning pathway by a receptor-independent pathway. Mitochondrial and energy-releasing mechanisms seem to be major targets of T2, although outside the mitochondria T2 also has

effects on carriers, ion-exchangers, and enzymes.

Significant increases in the liver actions of glucose-6-phosphate dehydrogenase and malic enzyme were found in studies cited below. These enzymes are
necessary for fat metabolism and liberation of energy in the form of beta oxidation. T2 exhibits significant increases in Growth Hormone release from the pituitary have been found in studies. Both T2 and T3 increased Growth Hormone release by 5-fold. This makes sense when you consider women need growth hormone to stimulate their breast and ovarian tissue for fertility and reproduction.

Non-Geeks: In women, iodine is also critical in making breast milk, tears and saliva. The higher your estrogen level, or the lower your SHBG level, the more likely your eyes, mouth, skin and vagina will be dry. You also won't make a lot of breast milk to feed a child. Your ability to sweat will also be altered.

I personally believe this is why women go through menopause now. It is because of their evolutionary design. No one seems to have a clue why menopause exists. I think I do. Women need to lower their estrogen levels as they age, to reclaim their total body iodine levels, to help them have a longer lifespan as they age, by being able to cool their surface semiconductors with sweat protecting the PUFA's in synapses (DHA) from oxidation by increasing their ability to myelinate to increase their regenerative DC current by increasing their iodine absorption. This also helps explain why diabetic women have a higher incidence of peripheral neuropathy than men do. They have less myelin, so any further decline in iodine assimilation impairs ketogenesis to regenerate myelin and diminishes their ability to heal and regenerate. This is where the decreased immunity seen in diabetes rears its ugly head for those with metabolic syndrome.

This also helps explain why women in menopause get hot flashes

and night sweats. Iodine stimulates uncoupling proteins and it stimulates the sweat glands. When they had their menstrual period, they did not have the stimulatory effect of iodine, but now without their cycle they do, rather suddenly. It is not from a lack of estrogen, as most physicians believe, it is from more iodine in their bodies. Sweating is a new evolutionary design in hominids. Primates do not have the sweat gland we do. It is a change to the mammalian body plan unique to humans. This was done to be able to cool our bodies down to save energy, because they transmit energy when their surfaces are better cooled down by sweat because it increases semiconducting currents. In this way, they are able to return entropy back to the environment best by heat transfer from their dural venous system in their brains. This is why humans lose most of their heat through their head.

Primates use vitamin C as an endogenous antioxidant but humans evolved to use iodine as their peripheral antioxidant. We have large brains so we have a lot more semiconductors to cool everywhere on our body. Iodine also helps lower the oxidation of DHA in synapses in humans. This is why the brain has its own thyroid hormone control system because we have way more semiconduction circuits in our brain. When we lose our iodine function in the brain we lose the ability to offset some of the inflammatory cytokines in the brain circuits. this is when we see high IL-6 levels in the brain and altered salivary cortisol and melatonin levels on lab assays. In the frontal lobes these change can cause ADHD or depression and in the leptin receptors it causes an inability to sense energy balance and leads to obesity. When humans become energy inefficient they usually gain weight, as I laid out in EMF 2 and recently in Energy and Epigenetics 4, using Kleiber's law.

Sweating is another buffer that we use to become more energy efficient, before we need to expand out fat mass to have the same effect. This is why women gain fat mass in menopause too. It happens because they are less energy efficient because

of their loss of progesterone and prolactin from their hypothalamus. This reflex sweating, seen in humans, is done to cool down women's newfound rediscovery of efficient semiconduction, as their estrogen levels fall in menopause. Women with hot flashes usually have abnormal sweating as a result. Once they acclimate to their new increased iodine absorption, their symptoms resolve because they adapt by increasing their myelination and their DC current improves. Many menopausal women get placed upon estrogen and sometimes their symptoms of hot flashes goes away, but so does their ability to reclaim iodine to myelinate. Here is where a supplement might not be wise. This implies they can alter their immune balance as they age. Iodine happens to increase neurogenesis in humans, so when iodine is low, cognitive haze is also a result. The brain has its own thyroid hormone system to control neurogenesis even if the body stores are low. This is an example of how the brain controls energy partitioning for itself, over vegetative systems that dominate in the thyroid gland to control the body. This pattern of energy distribution and loss is what we see in atoms too. Atoms tend to lose valence electrons before they lose nuclear protons.

So if you get placed upon estrogen, or happen to be estrogen dominant for any reason at all, male or female, you may get cognitive haze. Iodine increases our ability to become ketotic to myelinate and regenerate our immune system and our brain because of the MHC 1 evolutionary connection. If you do not eat a ketotic diet when these changes happen these benefits will be hidden from you. For most of the blogosphere they remain a mystery.

Cystic Fibrosis: A Model Disease to Show our MHC 1 Lineage

Iodine is critical in the pancreas too. Ask anyone with cystic

fibrosis if their pancreatic function is not a critical part of their disease. These patients have a genetic defect inhibiting their proper use of iodine across cell membranes during their entire life. CFTR regulates the movement of halogens and sodium ions across epithelial membranes, such as the alveolar epithelia located in the lungs. It acts as halogen/sodium symporter. Most people without CF have two working copies of the CFTR gene, and both copies must be missing for CF to develop, due to the disorder's recessive nature. CF develops when neither copy works normally as a result of mutation and therefore has autosomal recessive inheritance. When the CFTR protein does not work, chloride and thiocyanate are trapped inside the cells in the airway and outside in the skin. Then hypothiocyanite, OSCN, cannot be produced by the immune defense system.

The lack of iodine inside cells diminish the function of barrier membranes, and this decreases mucous production in many organ systems, and they dehydrate more easily. CF patients sweat has excess sodium in it, as a result of this inability to properly use iodine across their cell membranes. That is why they should be living an extremely ketotic lifestyle to keep their estrogen levels low, during most of their life. This is best obtained while eating an Epi-paleo Rx. Because of a chronic life long lack of iodine, they also have life long poor myelination, and as a result, and they have a poor regenerative DC current of flow below their myelin level. This is why they have huge infection risks throughout their shorter lives. Primates, who also eat a diet without an iodine/seafood, and humans with cystic fibrosis have something in common too; a short life. Now you can appreciate why this is really the case. When their DC current drops, so does their ability to have a strong immune system. Very few of these patients get told this at all by modern medicine, and that is a damn shame.

Breast Cancer, Prostate Cancer and Sleep Apnea

The Japanese average 13.8 mgs of iodine/iodide per day. This increases their ability to myelinate well into life and it belies why their women have low breast cancer rates and why they live longer lives than most other humans. You might not be shocked to learn that artificial blue light destroys melatonin signaling and raises cortisol levels. This acts to destroy the piezoelectric charge in collagen and a cell loses its normal cell volume. It tends to increase in size and those cells mitochondria also change in size.

But I bet you are shocked to learn loss of melatonin signaling also increases estrogen levels and, in turn, lowers iodine absorption from the gut in both sexes. It has a much larger affect on women's ovarian and breast cancer risk because both tissues concentrate iodine. This is where BRCA risks really lie. It begins with fake blue light. This is already published in the literature, but conventional wisdom just ignores. These factors all act in unison, to lower myelination, slowly destroy sleep, and the DC current of regeneration of the immune system. This sets these women up for breast cancer, ovarian cancer, and men for sleep apnea and higher levels of prostate cancer. Anyone who has good iodine and iodide intake and assimilation from their diet, has an excellent DC current body wide, and their brain improves its function as sleep improves. Becker showed that this is the current, is the DC current that regenerates all tissues in humans in autophagy during sleep. **Neurogenesis and immunity are two of the most important systems to regenerate in humans because this is where evolution gave us our longevity within the primate tree.**

If your neurons in the hypothalamus are ruined, sleep reacts and goes south early, and immunity does too because of how neurogenesis and immunity are linked by evolutionary design in the human brain.

Women and Transgenerational Epigenetics

During child bearing years, women are designed to be more sensitive to environmental triggers by evolutionary design, to pass environmental information on to their offspring. But once women have exhausted their egg supply from their ovaries, their estrogen levels plummet, and this allows them to increase the absorption of iodine from their gut. This is why an Epi-paleo Rx is vitally important to a post menopausal women. **This is also why autoimmune diseases tend to improve as women become post-menopausal and when they are pregnant.** Progesterone predominates in both situations, and it supports BDNF and NGF and myelin repair. It also will give many women pause before they jump to take birth control pills which mostly have some real or fake estrogens in them. This is also why breast cancer walks hand and hand with low iodine, altered melatonin cycles, and low sulfated vitamin D3 levels. This is another reason I am not a big fan of estrogen replacement for post menopausal women, and I favor progesterone instead. Excessive carbohydrate diets cause us to raise estrogen levels in both sexes. Iodine and progesterone favor water retention, ketosis, and brain growth. This is why high progesterone levels are favored in the third trimester of human pregnancy. This also supports myelin regrowth and ketogenesis that you read about in Energy and Epigenetics 1. Consistent high progesterone also favors subcutaneous fat growth for the child, so a women can not go hog wild with exogenous progesterone supplementation in menopause. Women need ketosis more then men do as they age, because of these factors. I have been consistent at saying this for some time, but now in this series it may have a new meaning for you ladies. Fat men have the same needs because they have excess estrogen due to the aromatization of testosterone by fat cells.

Chimps and Hominids

Chimps do not live long, but humans do have longevity because of the relationship between iodine, ketosis and myelination. Myelination is critical for expansion of the human immune system. This system helps us have a longer longevity than chimps. All of these epigenetic changes in unison lead to a big brain and expansion of life span in the primate tree. When hominids myelinate they increase their DC current that Becker found below our myelin level and outside our axons. It is this current that regenerates and renews human tissues far better than it does to our ancestors who do not have this capacity. **This also links neurogenesis and immunology to an evolutionary decision born by epigenetic expression of our genome.**

Here is another irony for you to consider. How did one of nature's most fundamental laws help this transition from primate to human? Most of this viral genomic mass in our oceans has been measured to turn over and divide every other day due to the energy contained in mostly **solar UV irradiation bathed in seawater**! This is why, even today, virus's remain simple genetically speaking. They do not need to evolve more, because their survival is guaranteed because of the ecologic niche of the thermal water bath they exist in. Here you see Energy and Epigenetics 4 making an appearance in the form of the photoelectric effect and water chemistry. The photoelectric effect of the sun and water chemistry have remained constant and never ending warehouse of genetic spare parts that would eventually help us make a human brain. Unfortunately, water chemistry and the electromagnetic field have not remained constant over the last 150 years after that brain has now formed. The result is the last two evolutionary system, the brain and immune system are now the two systems under neolithic attack as energy in our environment is no longer balanced. This is very important when you consider how energy is partitioned by fractal design in living things. It opens you to a new reality why neuro-degeneration and

autoimmunity are exploding in our modern world.

Is there any proof of what I am saying here is true?

Ironically, there is. Take a look at this video from 12:50 to its end. Take a look at this video on the evolution of human biodiversity. I know that it's a heavy, science-based video, but it shows you there is a massive difference between ape and human immunity in the KIR and HLA haplotypes that are controlled by the MHC 1 gene. You know that our DNA genomes are close to identical, so this change has massive importance to our evolution because it is one of the few genetic differences between us. Ape and human immune systems are dramatically different in the two areas that are needed to facilitate rapid adaptation for longevity. Those two areas are neuro-immunity and neurogenesis.

Summary

This 'sped up DNA expression" is a result of retrotransposons in our genome, that just 15 years ago, we thought was "junk DNA." Today we know that 99.3% of our DNA is used to alter our genome based upon epigenetic signaling. We have recently found out that 7% of human genes have undergone mutation just in the last 20,000 years. This rapid molecular change has astounded scientists from the human genome project. It did not shock me one bit, because of the thoughts I had in 2005 about the findings in our own genome. The reason should be obvious now to you. **The electromagnetic field man has lived in the last 20,000 has also rapidly changed, and as a result, what forms our physiology, proteins, also changed with it.** We covered that in EE 6 too.

This is yet another reason that we must question today's wisdom in the blogosphere that man's genome has changed very little in the last 100,000 years. It is not true and just a belief they carry. Eating a diet designed for the environment 100,000 years ago makes little sense for our long term

survival today, considering how the environment has changed over the last 100 years. **You cannot create the future by clinging to the past.** The "caveman diet" helps humans today in the short term, is because the modern diet is so perverse compared to how our epigenetic toolbox operates. So taking a step back helps, short term. **Survival and disease reversal, however, requires new ideas for the new set of circumstance we are facing in our modern world.** This is why a high fat, moderate protein diet and fit us best today. When you understand how epigenetics operates in humans, it becomes clear Earth's environment is nature's most difficult test. On some worlds you must overcome physical discomforts, even suffering. Others lean towards mental contests. Earth contains both. Other mammals do not have our epigenetic programs so comparing them to us is really not a congruent test. Modern biologist still do not get this insight.

We all must accept that the "modern human environment" is built to steal energy from our bodies, so to remain optimal and keep adapting, we now need a high fat, lower protein and low carb diet. The reason is simple. More fat liberates more ATP on a per unit basis, 36 ATP vs 147 ATP. The more ATP we have the more open protein structure is to bond water molecules. Since water is the most energy efficient way to transfer energy on our planet the goal should be to maximize this effect if we are to mitigate a higher energy losses to the environment. And more ATP is the key to generating more energy transfers from water chemistry, as you will soon see as the series continues. Life is animated from water energy transfers. This is why life can live 30 –60 days without food but only 7 days without water. ATP is just a helper in this energy mechanism. Eating a diet that provides a huge source of energy makes more sense when you are constantly losing energy to your environment. This is why the Epi-paleo template stands above any other for today's condition of existence. It however, does not mean it will remain our best option.

It is a Rx designed around our epigenetic mechanisms, and not our cultural or medical beliefs. We must use epigenetics to guide our decisions in the new environment we are facing today. In fact, the optimal diet for us all may change in the next ten years because of what is happening today in our world. The human diet should never be thought of as static. It must change as the environment we create around us changes. This implies "our species solution" really is a moving target because of our epigenetic toolbox.

The real lessons for us today are best learned by recognizing and coming to terms with what being human really means with respect to the 3 fundamental laws of nature we spoke about in Energy and Epigenetics 4. It is how we stand up to failure and duress which really marks our progress in life. Sometimes one of the most important lessons is to learn to just let go of the past. The science of epigenetics is the ultimate exercise for your human mind. The key point is to let your mind seek out and experience life where ever you experience it, then react. The next layer of life's experience is what we think others think of us. Attempting to keep up with them, or lead a life of totally reactive conditions of existence, is how most of the world lives today. I reject that now, because that brand of life is like slowly dying, instead of living robustly. With my perspective, I realize I can only enjoy Mother Nature in how she unfolds to me now, because I understand how her epigenetic toolbox works now. I can not change her, and I do not wish to, but I can choose how I can influence and exert my ability to maximize my life experience in her current environment. As long as you ask yourself harder questions then the answers you currently have, you are breaking through; but the moment you begin to accept things as they are, you are psychologically dead. Moreover, the last 63 years on our planet say you are becoming the living dead in our healthcare system. **Do not pursue what should be, but understand what is now, instead.**

We now know today, man's genome does not hold the key to neolithic disease expression, but his epigenetic expression of his DNA/RNA are directly tied to the electromagnetic field of action those cells are in. The cancer lobby still has not gotten this message and this is why they won't cure a thing. Cancer is not a genetic disease, it is an epigenetic one linked to massive loss of energy because of choices the person has made knowingly or unknowingly to themselves. **Cancer explodes when we lose control of T cell immunity.** Do not forget that link to the immune system coded for by the MHC 1 gene. The reason they do not know, is because they have never been exposed to the toolbox of epigenetic mechanisms.

No other mammal on this planet has more "junk DNA" than humans. Do you think there is a reason for this now? This means we, as a species, are designed to be very responsive to environmental changes and can rapidly mutate our genome using retrotransposons that can jump to other parts of the genome that need help when energy is being lost. It is how humans are designed by evolution to shuffle their own decks to improve themselves based upon the challenges we face in our environment. It works well when energies in the environment they evolved into are stable. When energy sources change for the worse, the structure of matter changes too, by Einstein's energy mass equivalence equation. When this happens new species or traits within a species begin. Today we see obesity as one of those effects. As we lose energy we get fat. Today, many neolithic diseases are the proof that I am correct. Are you beginning to understand why environmental mismatches we face in our modern world might be harming us now?

The irony of modern society is that we are now the best informed society that has ever walked this planet, but yet we also carry greatest risk of dying from our own ignorance. And the mantra of this neolithic ignorance is "**everything in moderation.**" **Moderation is the state that follows from extremes of cowardice and is characterized by excessive**

closed-mindedness to alternatives.

The very toolbox that produced our species is the one taking us apart, as well developing technologies that steal energy from our systems. **We are losing energy first, in the brain, and then in the immune system**.

I am hoping by now you are beginning to see why neolithic diseases like Alzheimer's and Hashimoto's are exploding today, when 120 years ago they were unheard of. The two systems that we evolved last was our brain and immune system due to the epigenetic action of the MHC 1 gene. When we lose energy for any reason at all, these will be the two systems that go awry first, in our particular species, according to my quantum cell theory found in Energy and Epigenetics 6.

Our modern human environment essentially speeds up our genomic change using a new epigenetic game plan to extend life span from primate to hominid 4 million years ago. The reason it happened is due to how epigenetics works within our DNA toolbox. Things work well when inflammation is low and environmental energies are relatively stable. When they are not, the net result is, more disease and devastation in our most complex systems first. How did evolution come up with that idea? That idea was born from the currency of Factor X, that I covered extensively in my May 2012 Webinar. It is also laid out in the last chapter of my book, The Epi-paleo Rx.

America is the first culture in jeopardy of amusing itself to death … and this implies that we I think we need people who are several standard deviations from the population norm when it comes to insight and perception … to reverse the trend we are on today. **Excellence is the undiscovered land that lies beyond the horizon of average and mediocrity and status quo.** High potential and high productivity is not in the land of "just enough" or "just sufficient." It's achieved when the brave and discontent visionaries push hard against the limitations of mediocrity and average.

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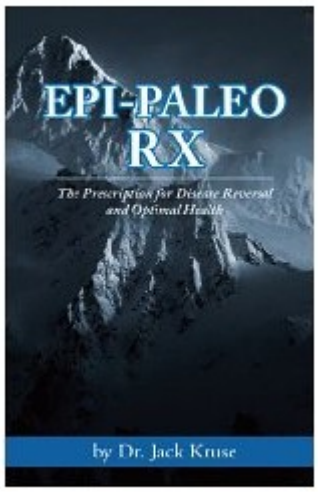	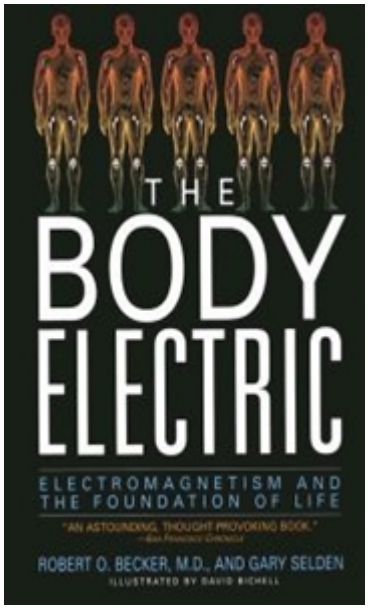	
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- Brain Gut 2: Viral Marketing
- Brain Gut 3: Look in the Past to See Your Prologue
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- Brain Gut 5: Paradigm Drifts Paramdigm Shifts – Epi-Paleo Rx
- Energy and Epigenetics 1: The Infant Brain is Unique
- Energy and Epigenetics 4: Light, Water, Magnetism

- Energy and Epigenetics 6: Quantum Cell Theory – Life as a Collective Phenomena
- EMF 2: Einstein, Meet Leptin

Cites

- Heather Pringle. Scientific American October 2013, “Why humans live so long”
- http://bloodjournal.hematologylibrary.org/content/122/8/1518.abstract
- http://jem.rupress.org/content/177/2/557.abstract
- http://www.amazon.com/gp/search?index=books&linkCode=qs&keywords=1451117833
- http://en.wikipedia.org/wiki/HLA_A1-B8-DR3-DQ2
- http://www.sitcancer.org/meetings/am05/primer_presentations/gumperz.pdf
- http://en.wikipedia.org/wiki/MHC_class_I
- http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3747329/
- http://curezone.com/forums/fm.asp?i=1895872#
- http://www.ncbi.nlm.nih.gov/pubmed/21844033
- http://topics.searchmedica.com/diabetes/content/article/1549113/2149275
- Lombardi et al. Endocrinology. 141, 1729-1734 (2000).
- Ball et al. J Molec Endocrinology. 19, 137-147 (1997).
- Moreno et al. Life Sciences. 62(26), 2369-2377 (1998).