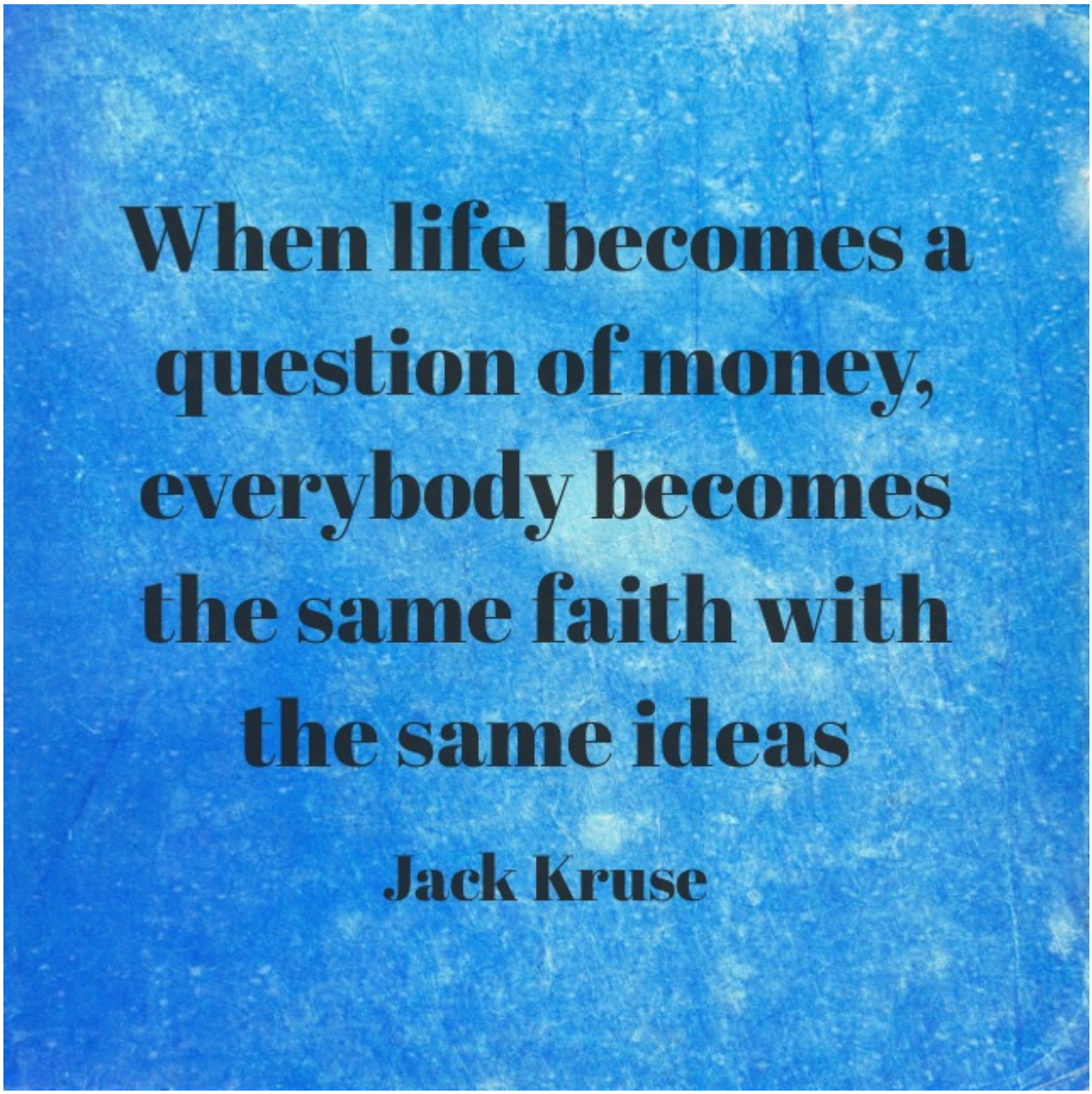
UBIQUITINATION 3: THE RHYTHM IS GONNA GET YOU

READERS SUMMARY

1. Ubiquitination, what is it?

Let’s get something clear before we begin with this installment about circadian biology. Paleo, ancestral health, medicine, are filled with good people. The ancestral health movement is a step in the right direction for wellness from where we are in medicine today. I, however, do not want to settle for good, I want optimal for me, my family, friends, and my patients. I believe there is a level of knowledge far above where most are willing to look, and this blog examines where this level begins. Ubiquitination is a cycle that controls most things in biology and it can’t be controlled by dietary template or lifestyle.



Nature allows us to plug into our true source of power. That power is buried its circadian cycles of light water, chemistry, and magnetism. Our cells collect this power daily and store it in cells. We are able to tap the spark within us. Our talents need this electric spark; few people understand the science of electric and magnetic currents, but most of us know how to use our built-in talents. The best way to plug into your wellness success is to make sure you don’t

bore a hole into your own plug. This is what most miss in this story on nature. Do not live a life that is all plug and no spark. You have to be able to collect nature's energy and then tap it. This series is about stopping beliefs and behaviors that only allow you to drive thru life with your emergency brake on. When you do this, you lose the ability to tap nature's spark. You must use nature to tap its lightening and save it in your bottle to electrify your talents to illuminate the world around you.

I think the ancestral movement is plugged into the wrong outlet and this is why so many experiences a power failure for their "light bulb". This has recently been a problem in the southern hemisphere were a paleo chef, Pete Evans, has tried to help the cause, but it really hindering people plugging into the correct electric outlet to change their life. At its heart, modern medicine, Pete Evans, and his ancestral crew in Australia have told the southern hemisphere recently the "paleo lifestyle" is about taking a balanced approach by returning to eating whole, nutrient-dense foods and living in a more sustainable and holistic way. What they don't tell us, is what happens to mitochondrial signaling when you adopt this lifestyle in our modern world of technology. They don't tell us how food is handled differently because of change in environment.

Paleo down under ignores much biologic history at our peril. Among the many lessons that emerge from the geologic record, perhaps the most sobering is that in life, as in the stock market, past performance is no guarantee of future results. **Eating the way we did 10,000 years ago to is no guarantee for anything.**

Reality is that which, when you stop believing in it, doesn't go away. I showed in 2014, in a bio-hack and in Tensegrity 5 *that a paleo template from two of their famous authors, simultaneously used with a co-morbid circadian mismatched life, could lead to a very counterintuitive result.* The

science that fills your perspective is what creates your beliefs, fears, and truth. If you want to believe in unicorns there are many other ancestral groups that think food trumps circadian biology, and that water chemistry is not physics based. They believe the water in a glass equals water in a cell. It does not, and never has. If you enjoy science fiction, head there, stay there and remain a critic to ideas different than the herd you hang with. Me, I don't seek those ideas or goals. If those are the type of groups to make you "feel better", than that is your choice. I respect it. Sometimes ignorance is bliss for people because thinking for yourself is not easy work. I know this personally because ten years ago I was that person. Today, however, I want to disturb conformity with knowledge and natural wisdom. I want to know how natural laws, are sculpted by ancient circadian cycles to form the life we get. I'm not interested in being accepted in any group because of the "cool kids beliefs".

Pete, et al. do not seem to understand the science of how light and timing, fundamentally uncouple ubiquitination from circadian signals. Disrupting the SCN causes circadian arrhythmia and an inability to entrain to light but not food. Hyperlink. **This idea is currently, very "un-paleo". That will change, in my opinion.** Their ideas are all based around food, macronutrient ratio's, bacon, non-GMO veggies, fruit, and grass-fed meat. This is clear, in all of "their books", and I want to be clear, it is a positive step in the right direction, but it lacks fundamental scientific context. That is why I will remain a thorn in their side, by showing you a different scientific scale and perspective.

These ideas become especially problematic when you consider what occurs to signaling when you step back in time for your diet when the environment takes five steps forward?

I suggest to my members on my site that they must avoid "group thinking". I tell them to question the ideas that come from my site. No idea should be free of critical thinking. You

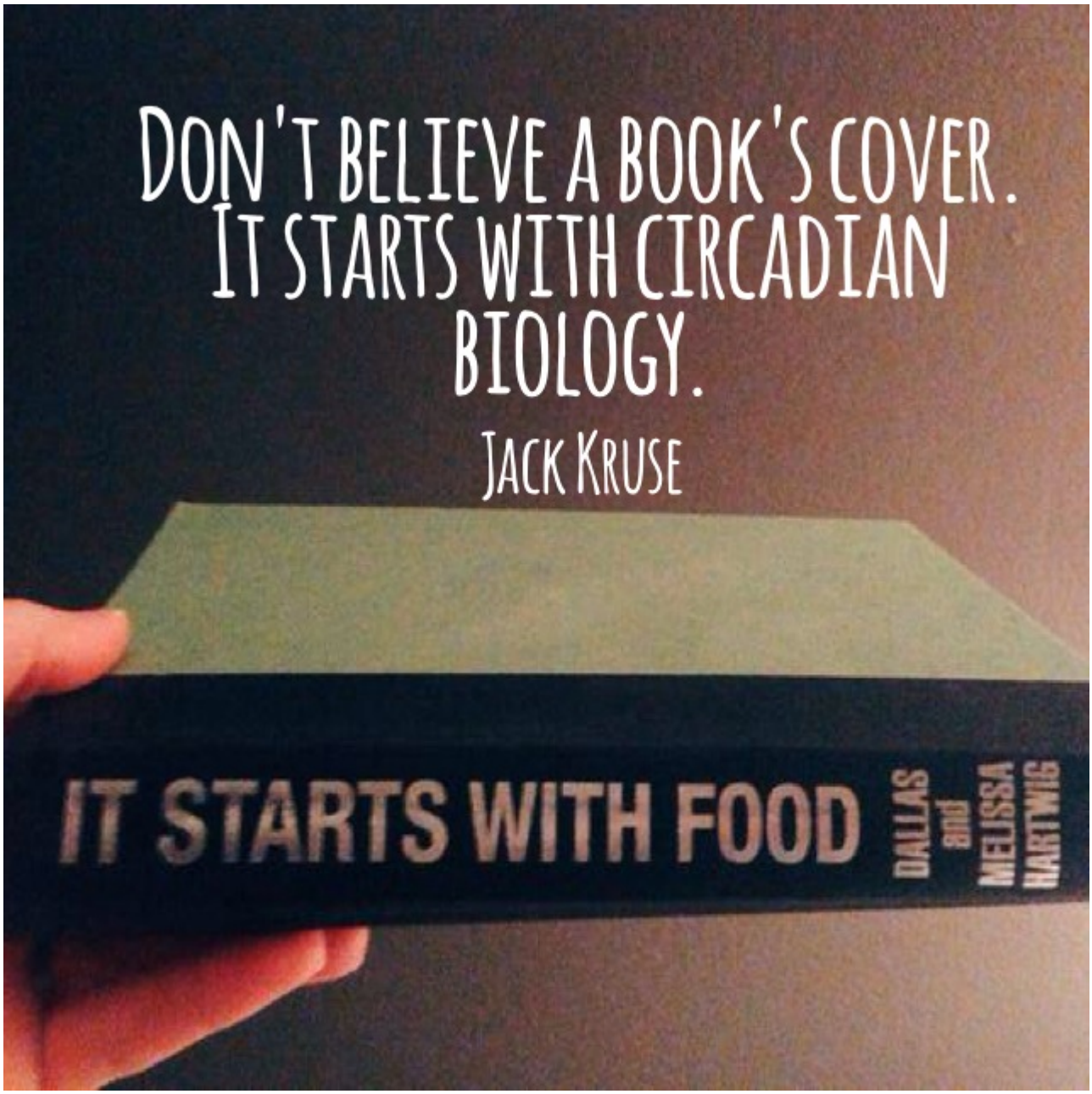
should keep chipping away at your knowledge and current beliefs with tough questions. A beginner's mindset is actually more fun in your road to optimal than reaching the destination.

TRUTH BOMB: I now live by a new personal rule for the last decade: No human being itself should be considered impaired innately, instead there are environmental shortcomings that cause the impairment. Thus, it is incumbent on the on the clinician to recommend treatment of the environment their patient is in. People react to an inferior environment, way before their genome is altered. That is what the science of epigenetics is telegraphing us, but the modern paradigm is not listening.

The best leaders inspire greatness in others through their words and actions. Trailblazers take people as far as they will go, not as far as they would like them to go. Trailblazers have the ability to unlock the potential talent of people to improve them all. Energy correctly applied can accomplish anything, in my opinion.

Anyone who believes in genetic determinism, the most common modern paradigm, in my opinion, also believes in unicorns, the tooth fairy, and Bigfoot. The genome is an 'organ of the cell', nor its dictator. This is a very controversial point today, but this series will make my case for my new beliefs.

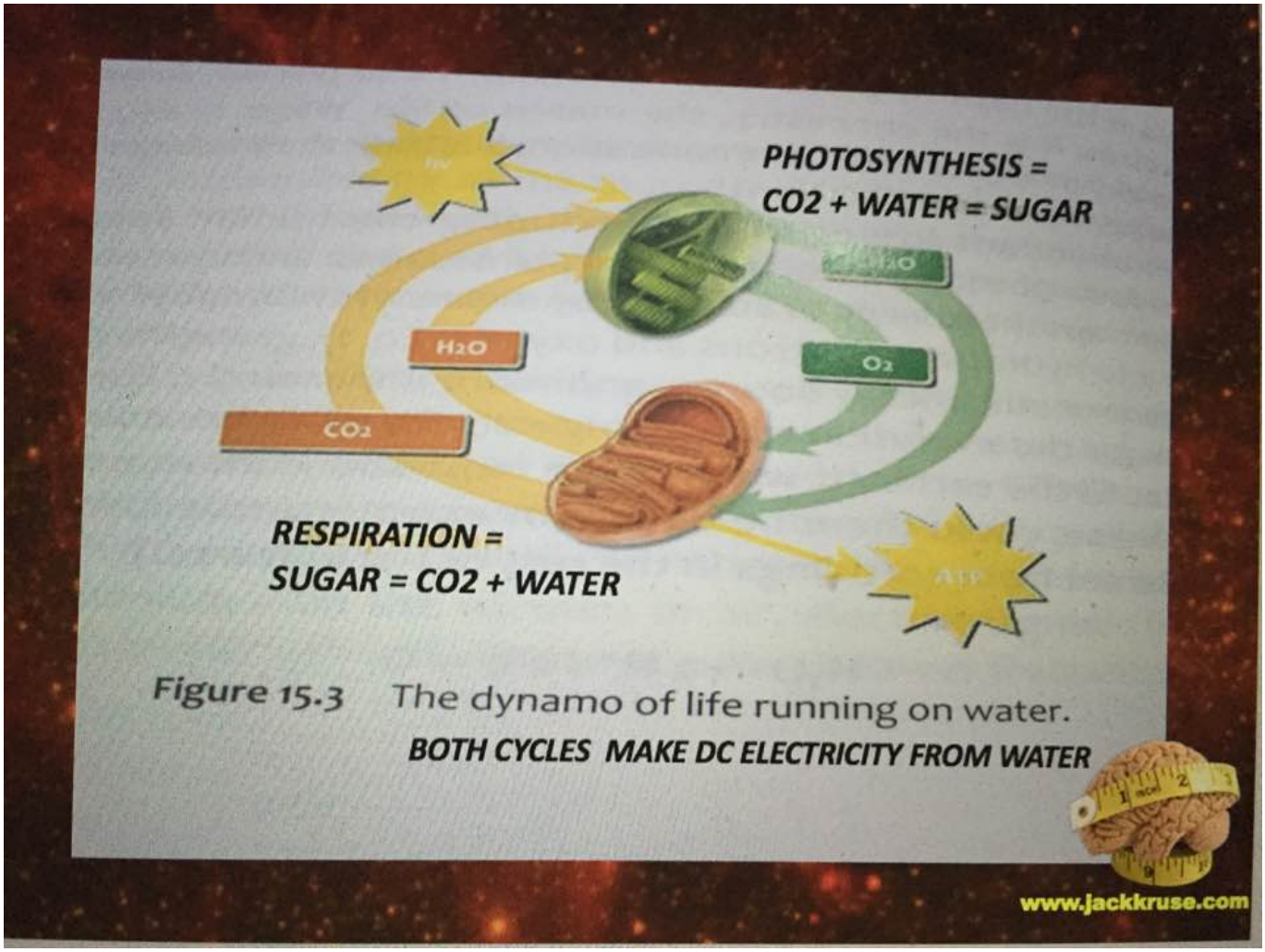
Where "paleo and I" agree with one another completely, is that epigenetics dominates genetics. They believe food is the main driver of epigenetics, *but I do not*. **I believe it is the physics of circadian biology which controls epigenetics.**



I go a lot further than food can. I use a quantum level view with new insights and distinctions around light/sleep, water, magnetism, food. I believe food is not primordial in epigenetics, why?

TRUTH BOMB: Light is controlled by universal physical laws and not biologic ones. There are 4 main physical laws, the electromagnetic force, gravity, weak, and strong force. Light is altered by the first two. In fact, no law in biology can inactivate QED of light. Now for the key part of my

perspective. Every disease, like cancer, on this planet has been linked to ubiquitination defects at some level in the literature. You may not know that physics experiments underpin ubiquitination but not knowing this might be why you don’t realize physics dictates biology at all levels of understanding.

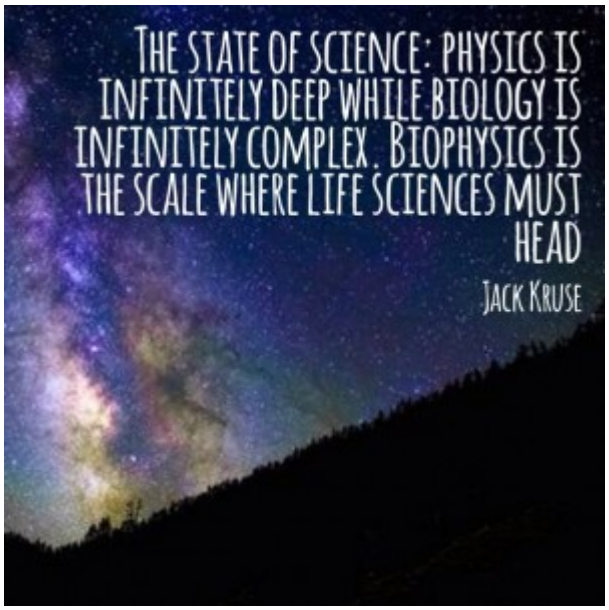


All ubiquitination defects are associated with altered melatonin and sulfated Vitamin D levels. Everyone seems to knows that light entrains the SCN, but few realize the science that dictates light actions on the atomic clock in our brain is controls by the laws embedded in QED and not biology. **Therefore, your beliefs about the epigenetic linkage to food and diseases like cancer, are not material, nor are they accurate.**

The harsh reality and it may cause you to dislike me…….but the message is totally factual.

Most people know I support ketosis in most diseases, like cancer, but there is a physics caveat to that support. Here is another shocker belief I have: **ketosis in cancer and most diseases won't work optimally or ideally unless your SCN operates at a faster rate than the organ or tissue clocks where your disease resides.** Why?

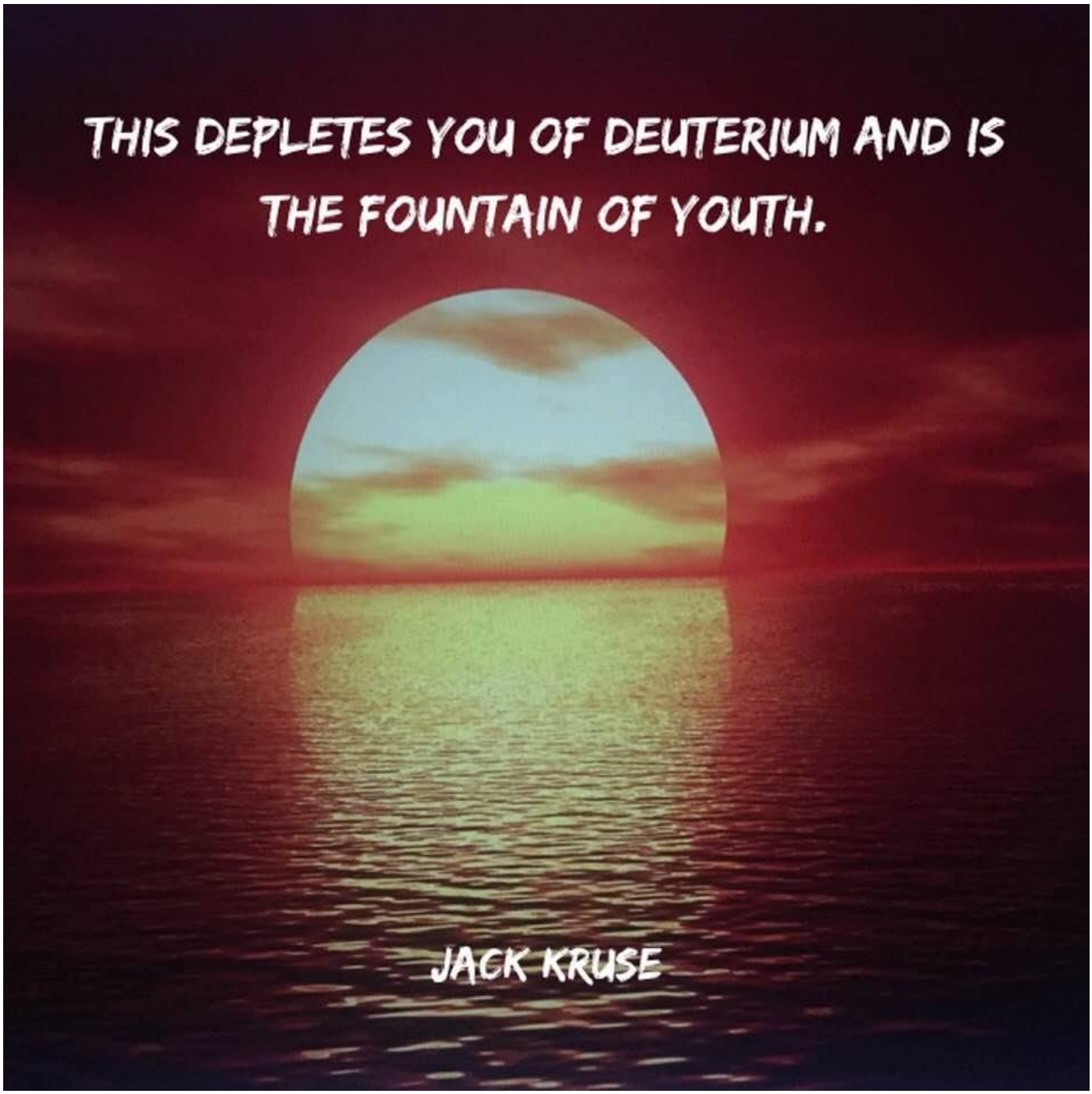
TRUTH BOMB: Ubiquitination 2, gave you that answer in detail. ***The SCN has to run faster to control cell signaling.*** That is the point, people like Pete Evans, medicine, and ancestral health are missing. Gravity, light and the electromagnetic force are all physical universal laws of the universe. They have been supremely vetted by quantum experiment thousands of times over. None are controversial. Their application to biology should not be either, but they are. Because these laws are fundamental to the way our universe functions, they cannot be subjected to biologic RCT's on how biology uses optical photonics in circadian biology. The modern paradigm will call for these RCT's because it fits their model of thinking, but they will be USELESS and are only a delay tactic for truth.



Why do I say this?

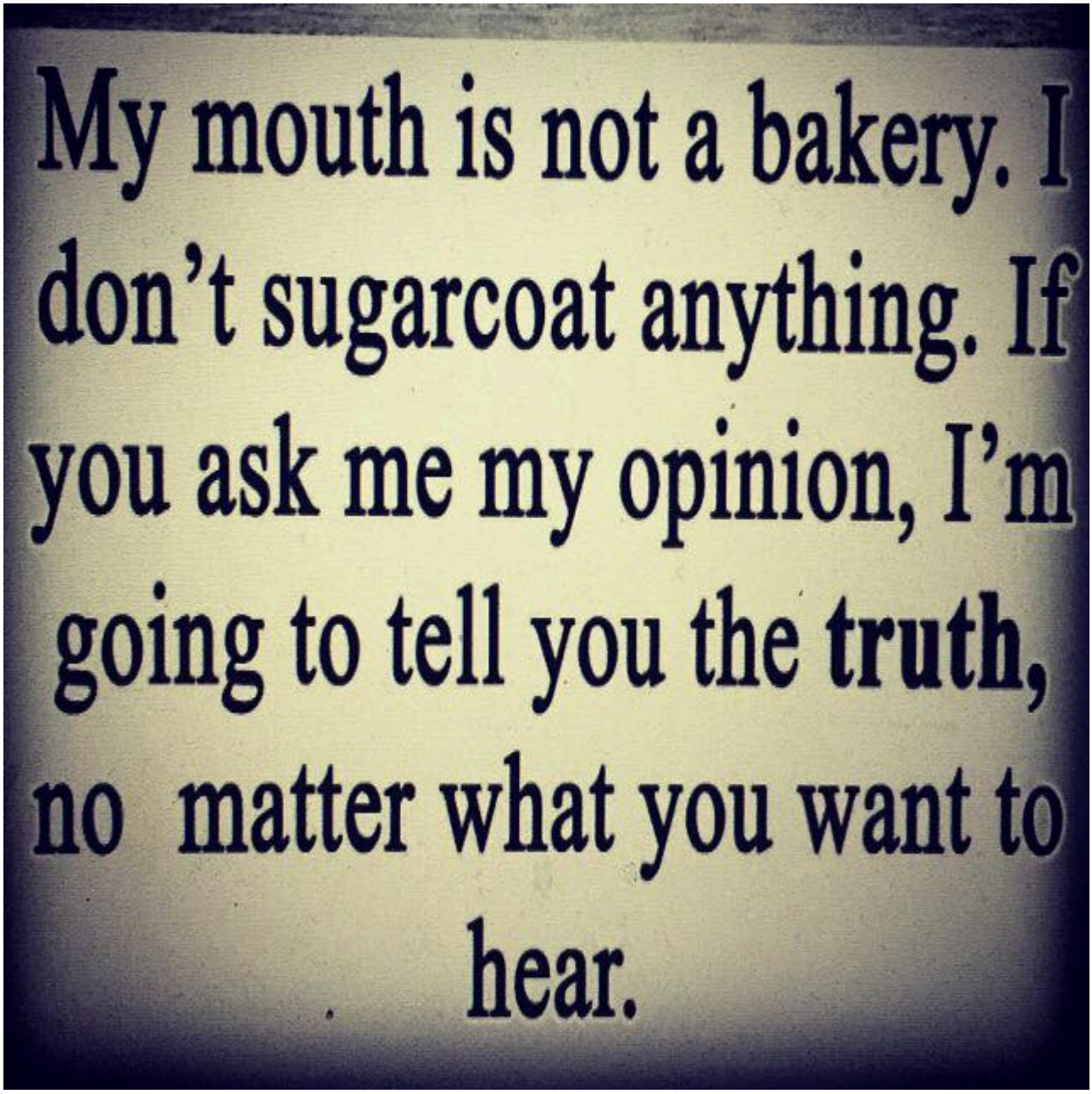
TRUTH BOMB I want to remind you that the science that dictates these biologic rhythms are based upon these universal laws, not biologic ones. They are not subject to an RCT or your beliefs. They are already firmly established by deep experimental proofs in physics. *Don't forget all life is made up from atoms within biology.* Biology fails to realize this to your detriment. I don't.

The absence of evidence suitable to your beliefs is not really material to understanding in this arena. Moreover, it is not the absence of effect when you begin to understand what a dielectric blocker can do to cell water optically.



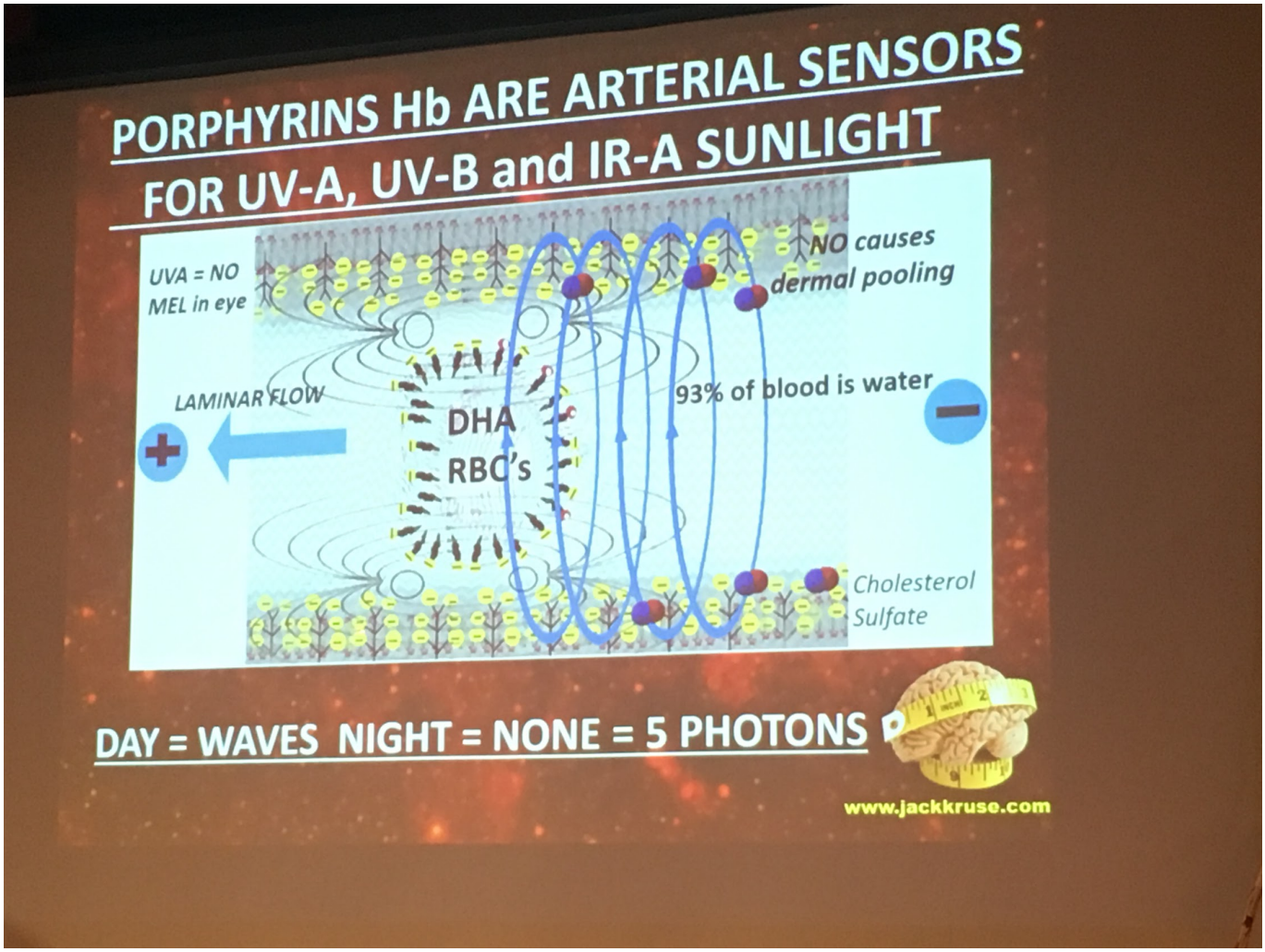
What water does in your cup, is not how water acts in a cell or around your mitochondria. That effect also translates to how our nuclear DNA works in cell water and within the cytoplasm where the majority of biochemistry occurs. Ketosis, from any dietary template, helps in cancer, but the ultimate cure will require an SCN that **runs slightly faster** than the tissue with the disease. Physics teaches us this because of how atomic clocks in orbiting satellites, control GPS devices on Earth. The physics is no different.

The ultimate irony for me, the solution to neolithic disease has been buried in us all this time, and we have never bothered to look within for the etiology of the disease. We've been blaming many other things like poor food, that look like they may cause the problem. It has never been about food, it is, however, 100% of circadian biology. This is a story of light and water and magnetism.



Moreover, circadian cycles direct how foods, which are broken down into electrons, are used in mitochondria. They also

dictate how protons signal in mitochondria and how much superoxide is made. So what is one of the coupled cycles that "*Pete Evans and his whole9down under crew*" rarely mention to their adoring fans of "this" lifestyle? **Ubiquitination links to directly to circadian cycles by way of melatonin and sulfated Vitamin D3, Ironically, neither is under our direct control with food. Sulfated D3 needs sunlight to be made from sulfated cholesterol and melatonin needs a lack of light to be released from the pineal gland to control the heteroplasmy rate in mitochondria. Sunlight and the absence of solar light link them. Molecules on Earth do not have to touch to interact because they can vibrate via a resonance mechanism that uses solar waves to entangle and connect them. Vitamin A and Vitamin D are two such proteins as seen below in our blood vessels.**



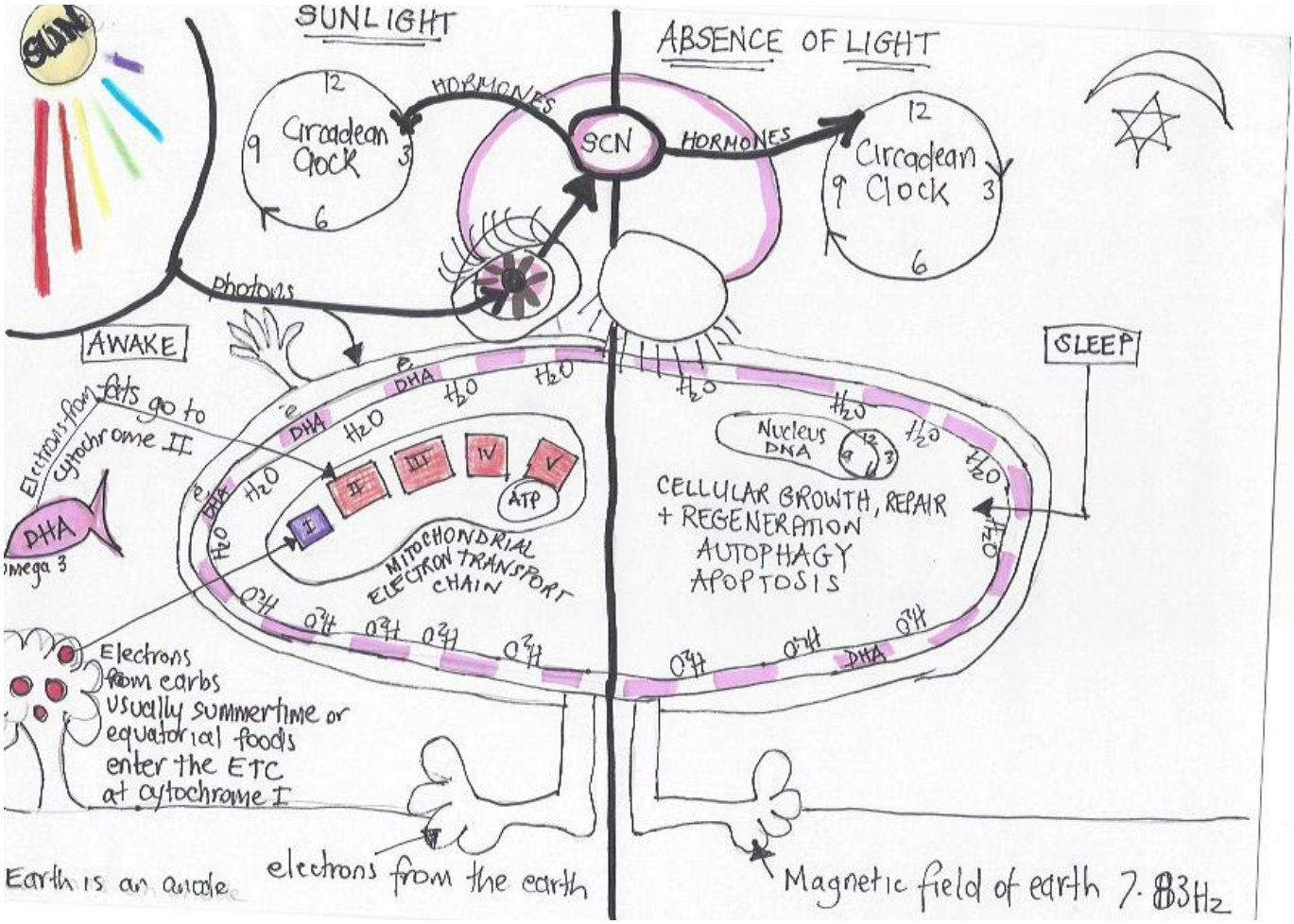
UBIQUITIN

Ubiquitin, a small protein (8.5 kd) present in all eukaryotic cells. It contains a highly conserved sequence of 76 amino acids that are identical in a wide variety of sources including humans, fish, and insects. It participates in diverse cellular functions, such as protein degradation, chromatin structure, and heat shock, by conjugation to other proteins through the carboxy terminus. This protein is highly conserved in evolution: yeast and human ubiquitin differ at only 3 of 76 residues. Pete Evans and his tribe are supposed to be the ancestral evolutionary leaders, yet they never mention this key protein? Ironic no? I guess it is hard to make money off a protein or a rhythm, but it is easy to make money for a new dietary lifestyle?

Proteins exist as a linear chain of amino acids. This chain can degrade over time as such a reaction is thermodynamically favorable in an aqueous environment (recall that proteins are synthesized by using energy to drive off a water molecule to form the peptide bond). When proteins degrade over time, this is called protein-turnover or ubiquitination. It is the balance between a protein's degradation and its synthesis that determines the concentration of that protein inside the cell.

Studies of protein turnover rates have shown that some proteins are short-lived while others are long-lived. Long-lived proteins constitute the majority of proteins in the cell. Short-lived proteins are typically key regulatory proteins and abnormal proteins. Abnormal proteins, like these, are often partially unfolded by chaperones molecules. Chaperones make misfolded proteins more prone to degradation.

TRUTH BOMB 2: *Protein turnover is one of the most energy consuming things present in a cell.* **This means the control of this process is critical. Energy is the business of life and evolution.**



Ubiquitin functions to regulate protein turnover in a cell by closely regulating the degradation of specific proteins. **It also couples directly to mitochondrial signaling.** E3 ubiquitin ligases link to MULAN a mitochondrial protein. Such a regulatory role is very important to control the cell cycle and metabolic cycle. *This is where food finally enters the picture, and not sooner.* By regulating protein degradation, cells can quickly eliminate a protein, that in turn regulates another function. This is why all things in biology are coupled to other cycles in feedback control. For example, consider a transcription factor that is needed to express a particular gene. Furthermore, this form of control is very effective as the elimination of a particular regulatory protein ensures that the process expressed by the regulatory protein is shut-down. An alternative regulatory strategy used by cells is to simply inactivate proteins. How does this

happen? The redox potential just slightly alters its charge and becomes able to change the protein's atomic conformation. **When that happens, the protein becomes thermodynamically different to the enzymes that recognize it because they vibrate differently.**

Unlike the Ubiquitin-linked regulation, such inactivated proteins can mistakenly be reactivated. This is how many types of autoimmunity can occur. Of course, Ubiquitin-linked regulation is energetically expensive, for if a regulatory protein is needed again, it has to be re-synthesized. This is why it is so tightly coupled to circadian control. If you lose that control, you lose energy balance. The leptin receptor job is to pay attention to ubiquitin control. *That is why poor ubiquitination is a synonym for leptin resistance.*

Ubiquitin functions in an ATP-dependent fashion. Why is this? This is where Gilbert Ling's idea's about ATP become very important to understand. Redox chemistry is the key to cell regulation, as mentioned above. Ling said in the 1950's, that ATP was not the high energy intermediate, as Peter Mitchell theory advocates. Ling, instead, countered that ATP withdraws electrons from proteins. This makes proteins more hydrophobic. They do not like water. When you do this, you are also changing the thermodynamics and the quantum possibilities of the protein in question.

In essence, you are tagging the protein with a new thermodynamic information, so that, its redox possibilities can either make it exist for long periods of time or mark it for early replacement by ubiquitin. Once the redox tagging is complete than the cellular redox Rx machinery will take the process over, using resonant energy transfers of the electromagnetic oscillations/vibrations in a cell.

PHYSICS TRUTH BOMB: Oscillations are akin to the interference

patterns of light and dark fringes one sees in a double slit experiment. They are the quantum equivalent of quantum beats that one would get from a musical instrument like a piano string.

Why is this important? Greg Engel showed science recently in published experiments in plant photosynthetic biophysical experiments, that the FMO complex in plants revealed all subatomic particles (electrons and protons) move within living cells as waves or oscillations. **So when electrons are withdrawn from proteins it changes their "tune", so to speak.** This is how proteins are tagged differently. Moreover, Ling's ideas are further advanced when you consider that cells don't need energy (in the form of ATP hydrolysis) to hydrolyze proteins. The only reason ATP is required by ubiquitin is that machinery is needed to specifically target the proteins that need to be degraded is used to alter *their tune* or resonant ability. *Ubiquitin, itself, does not degrade proteins.* It serves only as a tag that marks proteins for degradation. The degradation itself is carried out by the 26S proteasome. In short, proteins that are to be degraded, are first tagged by conjugating them with Ubiquitin (Ub) and these tagged proteins are then recognized and shuttled to the proteasome for degradation.

What are the degradation signals?

What determines if a protein gets tagged by Ub and thus marked for degradation? *This question is open for debate today, but I believe Ling's work shows us it is likely the redox potential of the surrounding protein that determines this.* This process is intimately tied to water chemistry around the protein. Why do I believe this? I have repeatedly told you in the last year's worth of blog's, that water breaks the natural symmetry found in nature. Many of you became confused by this term, symmetry because it is a term used in physics. Here is the biologic explanation for symmetry, that may make you feel more at ease. All thermodynamic laws are statistical

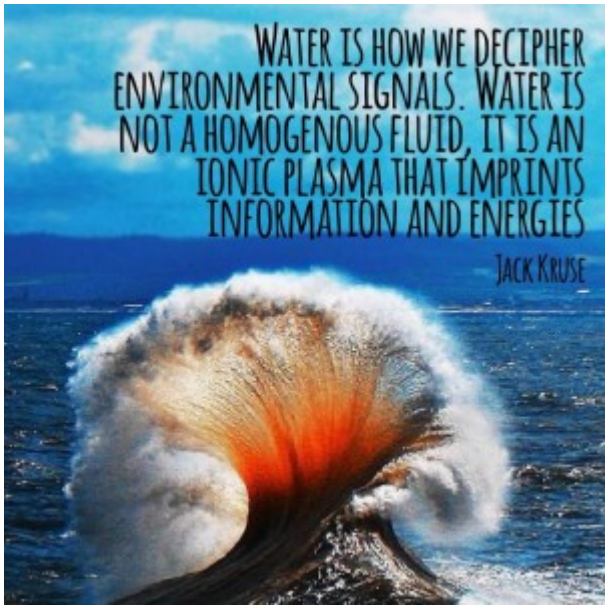
and probabilistic. Newtonian laws and the laws of thermodynamics are, ultimately, quantum laws that have been filtered through a decoherent lens. Think of a cataract as a decoherent lens, as an analogy. A cataract breaks the symmetry of vision by blocking blue light. This unfocused lens screens out the weird aspects of quantum mechanics so you cannot see or perceive it. Water is that decoherent lens that blocks us from seeing quantum effects. When you really understand water chemistry, you begin to see why we miss the quantum processes at work behind biologic processes. Enzymes all work using proton tunneling in water. I want you to think back to the MRI biohacking blog for a moment. In it, I explained in detail how I can see other things that happen in biology, that radiologist does not yet perceive. The reason I can do this is that MRI images are images of the changing face of water's hydrogen bonding networks in real time. To get it, you have understood the physics of water chemistry. When you understand this, you can then dig deeper, and you will always find the quantum processes lurking at the heart of our familiar, observed reality. This is how I look at MRI's now.

So let me give you an example of how this works using an MRI and a mouthful of water.

When someone has metal filings in their teeth, and they have an MRI of their brain, it can cause scattering of the MRI data signals, and we see big black areas in the base of the skull and brain and frontal lobe poles. It blocks us from seeing the tissues. The interesting finding radiologists made in the early days of MRI was that if a person had a co-existing sinusitis in the maxillary sinus right about these filled teeth, the MRI image could be seen! Remember, in this example, this means that the metals and the MRI were thermodynamic givens in the image equation. They were both presents in both cases. The only variable we altered was the presence or absence of water in our mouth. Why is that

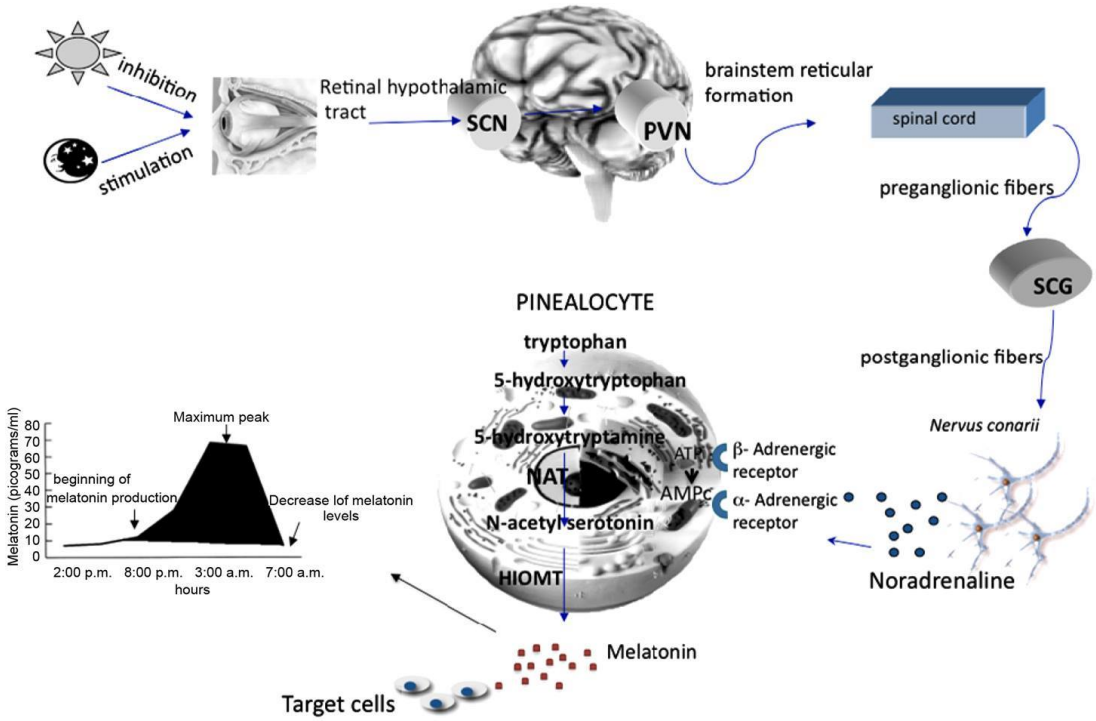
important? **It means that just water's presence or absence within a cavity or a cell can alter the biology and medical physics within a cell or cavity.** This insight is going to take on massive implications in the March 2015 webinar. These insights on water isotopes and MRI images had massive implications for me when I taught myself how to really understand how much data was really on an MRI image. In fact, it helped me immensely in my neurosurgery practice, because my specialty looks at MRI's on just about every patient we see.

Remember, that people with sinusitis have more water molecules in that sinus cavity above their filled teeth in which their sockets sit. This increase of water density allows us to see the image because water is capable of absorbing the excess electromagnetic energy coming from the transition metals in the fillings from distorting the image. *We can actually improve an MRI image further if you ask someone to hold water in their mouth during an MRI.* Rarely is this done, but I performed this bio-hack on myself many years ago, when I was trying to figure all this science out. This also points out why dehydration in living things is important during imaging and how it can affect biochemical reaction rates in us. *It also points out how water interacts with transition metals.* ***Water is nature's Faraday cage.***



Most of the neurodegenerative diseases are associated with increased amounts of metals in dying dehydrated brain neurons with miss shaped and misfolded proteins. Redox chemistry is the key to cell regulation and it is subject to proper timing, specifically circadian timing. Why? Remember that light is an electromagnetic oscillation or wave. The SCN in the brain's visual pathways have few efferents because they only react to light's oscillations and this clock has to run faster than the body's organ clocks. This is why the SCN is in the head or eyes of most mammals and close their brain's with mitochondrial density. When light is collected further from the core of the Earth, gravity's effect is lessened on the light. The brain has more mitochondrial density than our feet, so this can also make light bend more than we would expect in our visual system. The SCN is located in the anterior visual pathways. This means that the SCN circadian clock has to run faster than the organ body clocks because of the warping effects of gravity and magnetic fields in mitochondria. It also means that for ubiquitination to work properly, the SCN has to work faster than the organ clocks where the proteins are being replaced or recycled. If they do not, then the ubiquitination tagging mechanism, becomes markedly altered. Almost every disease known to modern medicine is tied to altered ubiquitination processing. **This is why I have stressed that circadian timing is the most critical aspect of wellness. Health and wellness starts with cyclic and structural cycles and not with food!!!**

Let us consider the relationship of light to changes in our environment to further hammer home this point. The reverse of this idea is that when we live at elevation we are further from the Earth core and gravity is a less effective, so it can't bend light as much. This effect on light is a big deal in the brain, because all DC electrical releases within the brain, are capable of altering protein size and shape. This change alone can change light polarization optogenetically. Optical physics has already proven this. Biology has just learned it. **This means circadian cycles and seasons are all linked to light generation in neurons and glial cells.** Dr. Luis DeLeCea work, and many others now, have shown us that changes in light is how we release our pituitary hormones. This means light and timing are fundamentally linked to proper signaling in the human brain. *If signaling is awry, what you eat will matter little, but when you eat really matter in a big way.* This is what I found in my 2014 biohack that I chronicled in my Tensegrity 5 blog. It is also a pillar in the Leptin Rx.



This means that just wearing clothes on your skin and blocking the sulfation of D3 and cholesterol in your skin and plasma, living at a higher altitude in a high rise building, can cause a circadian mismatch because the entrainment of the circadian clock in your SCN has to slow down by the laws of physics of LIGHT. This is why city dwellers and people in mountainous regions suffer from more health problems like depression and suicide too. We covered this in ubiquitination 1. The first three blogs in this series are a serious blow to Pete Evans beliefs. To believe, you must first understand. Pete needs to elevate his knowledge. The fourth one will be tougher and the fifth one a knockout blow for these beliefs. This is fundamentally why the SCN has few neuronal efferents from its position above the optic nerve where light enters our retina. Your SCN acts by the laws of physics, exactly like the atomic clocks that control GPS systems today in orbit around the Earth. Why? The speed of light is the reason why. Ubiquitination 2 has those details. Ubiquination rates are fundamentally linked to proper SCN function and proper cell signaling. Light is the major factor.

SUMMARY

Ubiquitin protein is found only in eukaryotic organisms and is not found in either eubacteria or archaebacteria. I will remind you that eukaryotes also differ from prokaryotes and archea because they use DHA in their cell membrane structures. DHA has the ability to turn light oscillations directly into DC electric currents too. Among eukaryotes, ubiquitin is highly conserved, meaning that the amino acid sequence does not differ much when very different organisms are compared. *There are 7 conserved lysine residues in ubiquitin.* This will become important as the series goes on. Also contributing to ubiquitin's stability and compactness is its hydrophobic core. Here again, you can see how size and shape are linked to thermodynamic stability and mitochondrial signaling via alterations in MULAN. For example, proteins taken with food are degraded in the intestines, before being absorbed. However, the energy requirement to degrade proteins in the cell is not without purpose. In plants, photosynthesis is unique because it is the only place in the natural world where water is burnt (oxidized) to yield electrons to drive their biochemical reactions.

I believe the coming age of medical physics, we will find that the interface of certain proteins with water in all animals will do the exact same things. I fully expect this data to show up in the neocortex-CSF interface, and mitochondrial-Minos-MULAN interface, in the gut enterocytes, and gut lumen where bacterial photosynthetic organisms meet our eukaryotic cells. Plants deliver these water electrons/protons to NADPH. We deliver them to NADH and/or NADPH and filter them down to form an electrical current. That current is altered in very specific ways using paramagnetic and dimagnetic iron-sulfur complexes in cytochromes to reduce oxygen. This transfer of electrons/protons from food, water to oxygen renders diatomic oxygen paramagnetic, so it can be attracted to mitochondria throughout the body. Mitochondria are the sources of huge nanomagntic fields in us because of the massive electron

currents they contain because of ETC. Proton spin affects these currents. When mitochondria do not work well, we see lower levels of oxygen reduced.

Ultimately, this leads to a pseudo-hypoxic state in cells, that becomes inextricably linked with poor ubiquination signaling and increased protein turnover. This leads to excessive epigenetic activation because of hydrogen isoform changes in RNA/and DNA via the PPP. This relationship has already been made in the literature, but no one seems to know why. *In this blog, I have used medical physics to make that connection for you.*