UBIQUITINATION 21: EPI-ONCO-GENESIS

READERS SUMMARY:

1. HOW DO PLANTS AVOID CANCER?

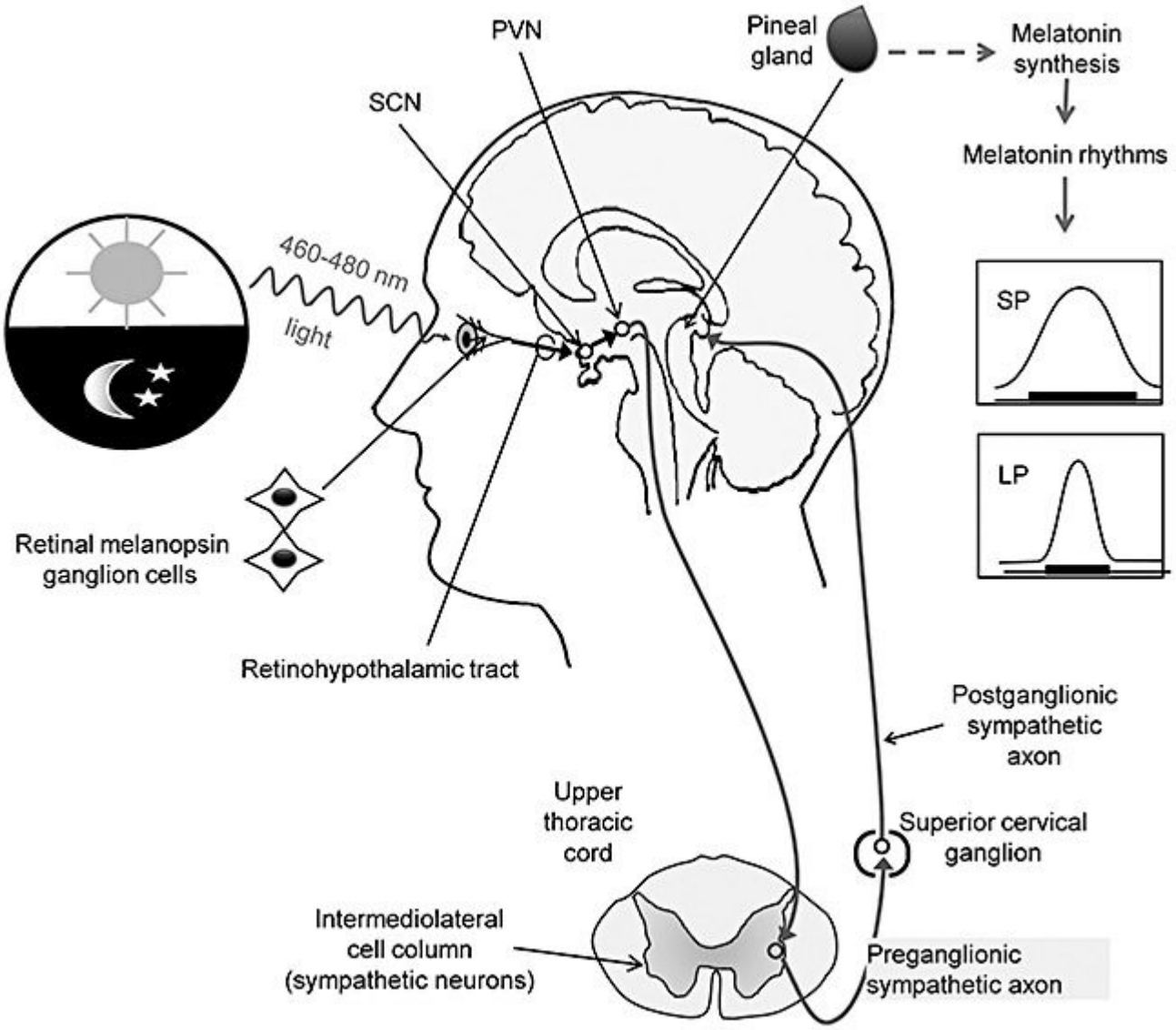
2. WHY DO WE GET IT?

3. WHY DON’T WILD ANIMALS GET CANCER?

4. WHY ARE ANIMALS IN CAPTIVITY SUSCEPTIBLE TO CANCER?

5. IS FOOD AND EXERCISE ALL ITS CRACKED UP TO BE, OR IS IT LIGHT?

Let us quickly review why is the bending of blue light a modern problem? It has massive implications of how fast or slow the circadian clock in the central retina operates. It is driven by blue light detection via melanopsin and the retinol cycle. These neurons project directly and exclusively to the suprachiasmatic nucleus (SCN) and then onto the leptin receptor. This circuit is a giant semiconductive circuit that use both light and electric signaling during night and day.



Light synchronizes mammalian circadian rhythms with environmental time by modulating retinal input to the circadian pacemaker– SCN of the hypothalamus. Such photic entrainment requires neither rods nor cones, which until very recently, they were the only known retinal photoreceptors. We covered the details of the eye clock earlier in this series. Today, we know that retinal ganglion cells innervating the SCN are intrinsically photosensitive. Unlike other ganglion cells, they depolarized in response to light even when all synaptic input from rods and cones was physically blocked. Their sensitivity, is tied to spectral tuning by the frequency of light. Because blue light bends more than any other frequency, it develops a slow kinetic of this light response; it matches those of the photic entrainment mechanism, this is how we figured out that these ganglion cells were be the primary

photoreceptors for this system.
Solar radiation directly link to ubiquitin via this eye clock timing mechanism. How? Color and frequency, is the short answer. All crytpochromes that are clock timers also use blue light flavin pigments. All proteins are either flurophores or chromophores. This means proteins have the ability to both absorb, emit, refract, and scatter light. The most important ability in mitochondria is fluorescence and absorption of light.
Fluorescence is a member of the ubiquitous luminescence family of processes in which susceptible molecules emit light from electronically excited states created by either a physical (for example, absorption of light), mechanical (friction), or chemical mechanism. Generation of luminescence through excitation of a molecule by ultraviolet or visible light photons is a phenomenon termed photoluminescence, which is formally divided into two categories, fluorescence and phosphorescence, depending upon the electronic configuration of the excited state and the emission pathway. Fluorescence is the property of some atoms and molecules to absorb light at a particular wavelength and to subsequently emit light of longer wavelength after a brief interval, termed the fluorescence lifetime. The process of phosphorescence occurs in a manner similar to fluorescence, but with a much longer excited state lifetime.

The fluorescence process is governed by three important events, all of which occur on timescales that are separated by several orders of magnitude (*see Table 1 above*). These timescales are extraordinarily fast because protein side chains work at the quantum scale. Moreover, this is why the 3 D atomic array must be precise, sensitive, and specific for optimized function in the respiratory proteins on the inner

mitochondrial membrane. Excitation of a susceptible molecule by an incoming photon happens in femtoseconds (10^{-15} seconds), while vibrational relaxation of excited state electrons to the lowest energy level is much slower and can be measured in picoseconds (10^{-12} seconds). The final process, emission of a longer wavelength photon and return of the molecule to the ground state, occurs in the relatively long time period of nanoseconds (10^{-9} seconds). Although the entire molecular fluorescence lifetime, from excitation to emission, is measured in only billionths of a second, the phenomenon is a stunning manifestation of the interaction between light and matter that forms the basis for the expansive fields of steady state and time-resolved fluorescence spectroscopy and microscopy. Because of the tremendously sensitive emission profiles, spatial resolution, and high specificity of fluorescence investigations, the technique is rapidly becoming an important tool in genetics and cell biology. **This is good news for people realize QED is going be the key breakthrough for modern medicine.**

Can you give an example to illuminate this point? Consider melanin and eumelanin since we been talking about surfaces and eye in this series. Melanin has a specific ordered absorption and emission spectrum. Eumelanin does not. This means melanin fluoresces and eumelanin does not fluoresce. This means that more than 99.9 % of all absorbed photons are subject to non-radiative dissipation in eumelanin. What is non radiative dissipation in English? It means light scatters into a complex emission pattern. This changes the color of light emitted from a protein. Scattering is a way to change light frequency, and this can radically change its signaling. Therefore the steady-state fluorescence (emission and excitation) of melanin is unique while eumelanin varies. Eumelanin´s absorption looks more like an inorganic material than an organic one. Why is this important to understand to make sense of this science you’re looking to make sense of? Melanin can give us a linear

response to light, while light's interaction with eumelanin gives us a far from equilibrium response. This means it breaks symmetry very easy. This makes it to be an ideal partner to other chemicals that break symmetry, like EZ water. Scattering light in this way implies it would be the ideal dance partner to work with water at surfaces. This is why eumelanin is present in the retina one of our key surfaces where light and water interact initially. Both of these proteins are complex, but eumelanin is a highly complex problem in vivo and in the laboratory; eumelanin has shown an extraordinary property to split and reform the water molecules , especially when the water is structured by an EZ because it refracts at 270 nm frequencies where all melanins are designed to work. This is why eumelanin and melanin are capable of evoking varied and highly responsive changes of the endothelial vascular cells when light frequencies are altered by these interactions. QED is a deep complex dance of quick actions and reactions to light at incredible timescales. You need to understand light's interactions with matter at our surfaces (eye, skin, gut): emission absorption, scatter, refractions, reflection, and transmutation to understand how proteins and light really work in life.

Let us carefully review this chain of quantum events: Light has a universal speed limit at 186,000 miles an hour. Solar radiation must go from sun to Earth to build a circadian clock timing mechanism. Light travels 30 centimeters in one nanosecond. The only way to increase its energy is to increase its frequency, so blue light is selected for since it is the most rare frequency of light in nature, and it is present in higher amounts in summer seasons. If blue light is used it can be used to tell time accurately because it bends under the force of gravity. This is called gravitational lensing. If atomic clock timing mechanism uses light it becomes deadly accurate. If the timing mechanism is off by even a small fraction, the distant (emitted) light signals will also be awry and quite varied. Now consider that this very same feature is used in modern GPS clocks orbiting the Earth

because they are extremely accurate. The atomic clocks orbiting Earth in satellites must run faster than clocks on the Earth's surface to navigate properly. They are designed to run 38 microseconds faster than our clocks in our GPS devices to gain the accuracy of light frequencies ability to bend under gravitational forces of planet Earth. In 38 microseconds, at the speed of light, if this orbiting clock difference did not exist in GPS devices , those devices would be off by over ten kilometers a day on Earth's surface. This would make the GPS device worthless. What does it do in a cell? When this happens in our cellular clocks (SCN to peripheral clock connections) mishaps then occurs in the target cells mitochondria, resulting in inaccurate timing. This results in things like neuro-degeneration, T2D, and autoimmunity.

Is there another effect of blue light frequency on life we can see these effects? Yes, in plants. Growth in plants and animals is tied to natural blue light emission, which is present in larger amounts in summer time radiations. Here is the key seasonal insight truth bomb of Einstein's photoelectric effect: The Earth is 3 million miles closer (3%) to the sun in January, than in July, due to elliptical orbit. So what are the effects on the timing mechanism that uses blue light as its reference point? What happens when we have a small but measurable change in velocity of a planet when it's moving around the sun? Go further, what color or frequency of light might be most affected by :

Gravitational fields?

Magnetic fields?

Water EZ formation?

Relative to incoming solar radiations?

Blue light frequency is bent most by gravitational lensing. ***Red light is least affected by it.*** This allows blue light to be used as a reference point for the eye clock's timing mechanism as the Earth moves around the sun. In winter we have on average 13 % blue light in sun light. In summer, we have up

to 26% blue light present. This varies based upon latitude and longitude to some degree obviously. These difference of blue light bend differently and your skin, SCN, gut, and retina are all capable of sensing this slight change in light's frequencies. Why? ***All of these tissues contain mitochondria which have blue light fluorophores and chromophores proteins in them.*** This is why melanopsin responds best to 460-500 nm light in the blue range. Exogenous use of blue light by humans alters that atomic timing mechanism. *Pretty amazing detail, don't you think?*

These are the things mitochondria and water in your "eye clock" pay deep attention to so you don't have too. This is how the SCN and your mitochondria yoke seasons. When they are uncoupled, like GPS devices, cellular signaling is off wildly and more protons are present and this leads to lower pH and lower DC electric charge in cells and their membranes. Their "mammalian batteries" become discharged. They lose DHA in cell membranes and their tissues, their SCN slows relative to the peripheral clocks gene speeds, and the DC current lowers, and illness manifests and death can come quicker than it should.

Russian scientists were critical in defining this role in key experiments, but no one in the west had bothered to read what they wrote in the 1920's-1950's because they had a political belief that their science was inferior, inaccurate, and was of little value. *Mind you, this was all untrue, but fueled by political and social beliefs of the time.* This was one of the bigger errors of biology in the 20th century, in my view. **I find those ideas ironic today, considering the USSR got to space before us, built more weapons then we did, and decided, as a country developing technology for commercial communications was not a wise decision due to human risks.** I went down that "Russian rabbit hole" of science ten years ago, and thank God I did. Roeland van Wijk's new book, "Life Sculpting Light" has all you need about this ignored science.

I tend to follow the science and its data, and not my current beliefs. This is why I recently got interested in marijuana growers in Colorado. Here is a big teaching lesson on why dogma can hurt you deeply.

I watched a documentary on pot industry in Colorado. Growing operations are spending millions on 500,000 square feet of tilt up warehouses and installing very sophisticated lighting equipment to grow the various strains of pot in raised beds and one growing operation said they had found some kinds of light (frequency and color)…but they would not say specifically which it was. They argued that they were working on a patent for their growing technique that would grow the plants 25% faster while getting more potent THC content. *I wondered if they are working on 'growing lights' that specifically increase the DC electric current in plants?*

Our government has been doing the same science with Monsanto and agricultural science in seed germination since the 1960's. Monsanto and Washington D.C. got the idea from Russian scientists who found some interesting experiments on germinating seeds emitting certain spectra's of light during their growth cycles. Today, in my opinion, this is the reason there is a very tight alliance between the US government and Monsanto. This is why multiple presidents have installed ex-Monsanto CEO's to run the USDA. Just as Monsanto and the farming business went high tech, the pot business has now also gone super high tech in Colorado. **In both areas, the pot business is booming at the wholesale level and retail level now because the Russians realized very early on that control of nitrogen cycles could massive impact the biomass production of carbon cycles just by using special frequencies of light.**

If you look at oncology data since 1900 you might notice a disturbing similarity to this story in plants. Cancer rates are explosive since this time. Have you ever wondered why?

I follow all of these trends for different reasons than most other people. I am not interested in GMO food or in weed. My interest in this area has fueled why I moved my family 3 years ago from middle America to the Gulf South.

LIGHT PHYSIC GEEKS:

Photosynthesis can be described by the simplified chemical reaction

$$6H_2O + 6CO_2 + energy \rightarrow C_6H_{12}O_6 + 6O_2$$

where $C_6H_{12}O_6$ is glucose (which is subsequently transformed into other sugars, cellulose, lignin, and so forth). The value of the photosynthetic efficiency % is dependent on how light energy is defined – it depends on whether we count only the light that is absorbed, ***and on what kind of light is used***; not all sunlight is photosynthetically active radiation. Many people forget this. It takes eight (or perhaps 10 or more) photons to utilize one molecule of CO_2. The Gibbs free energy for converting a mole of CO_2 to glucose is 114 kcal, whereas eight moles of photons of wavelength 600 nm contains 381 kcal, giving a nominal efficiency of 30%. However, photosynthesis on Earth can occur with light up to wavelength 720 nm so long as there is also light at wavelengths below 680 nm to keep Photosystem II operating in chlorophyll. **Using longer wavelengths means less light energy is needed for the same number of photons and therefore for the same amount of photosynthesis.** This is what the pot growers have found too in Colorado!!! It is amazing where we can find the pieces of the human puzzle if we keep an open mind.

The photoelectric effect has been extensively studied in plants. It has been found to be massively energy efficient. The rate of energy capture by the photoelectric effect in plants is immense. It is approximately 100 trillion watts (*1 trillion watts = 1 terawatt*). This is ten times the current

the current power consumption of the human species today. For actual sunlight, where only 45% of the light is in the photosynthetically active wavelength range, the theoretical maximum efficiency of solar energy conversion is approximately 11%. In actuality, however, plants do not absorb all incoming sunlight due to reflection. Human don't either if their skin lipids are sulfated. If these lipids are not sulfated (most aren't today) humans are apt to get surface cancers by photooxidation and scattering of the radiation. In plants photooxidation can occur in chlorophyll which is loaded with nitrogen. In plants, respiration requirements of photosynthesis and the need for optimal solar radiation levels are modulated, therefore, they do not convert all harvested energy into biomass. *This results in an overall photosynthetic efficiency of 3 to 6% of total solar radiation.* This shows you how strong a stimulus sunlight is for living things.

If photosynthetic efficiency becomes inefficient, excess light energy must be dissipated to avoid damaging the photosynthetic apparatus. Energy can be dissipated as heat (non-photochemical quenching), or emitted as *chlorophyll fluorescence*. In animals, we do it by uncoupling oxidative/phosphorylation in our mitochondria and emitting IR light. ***The Russians were the first to find out world-wide all living things with cells release ELF-UV light when they were stressed***. All things release excessive ELF-UV under stress.

You now may be beginning to realize why I have written so many blogs on photosynthesis. You might begin to understand why I value the new book, "Life at the Edge", by Jim Al Khalili. There was a quantum reason for this recommendation. I just have not said why, up until today's post. It is time you realize just how important light and nitrogen coupling are to all life on Earth.

High solar radiation is a real disadvantage in a dehydrated microwaved world if you are a plant, because it increases leaf temperatures, which increases respiratory carbon losses in plants. The same thing happens in our tissues or on tectonic plates on Earth. **This is why California has a current historic drought.** The physics are exactly the same. Sunlight is captured by photosynthetic cores that contain nitrogen as its center atom. Here you see, yet again how light affect nitrogen cycles to determine how carbon can be recycled in living things. This issue attacks the coupling of water and nitrogen to carbon cycling in plants. Remember, the availability of water and nitrogen are important determinants of the rate at which carbon cycles through any living system. It turns out, in us the very same thing happens at a cellular level; cells become dehydrated and we lose the coupling of nitrogen to water cycles. When this occurs, ***we lose the ability to fix electrons from foods properly, eventually causing chronic energy losses to the environment***. This was the story told to you in EMF-2. It also causes alterations in free radical signal release. Free radical can be in a singlet or triplet state depending upon the environment mitochondria sense. Today, biology thinks just the presence or absence of free radicals is all that matters. That is wrong. The type of free radical emission correlates with the amount of ELF-UV light released by a cell. We also emit a lot of ELF UV bio-photons when we are ill. Plants do this when they are uncoupled. Bacteria do the same. You have a lot of bacteria in your gut, don't you? If the situation occurs on chronic time scales in any environment and lasts long enough, in humans, cancer is the result. This implies cancer is not what we currently think it is. *It is not a genetic defect, but results from epi-onco-genesis from living in a disconnected world we self create*.

Why doesn't cancer occur in plants? Don't they exist in our 'crappy environments' too?
In plants, auxins help mitigate the oncogenic effects of higher photosynthetic capacity on nitrogen because auxin production is UV light mediated protein. **Auxins are a 3-indole acetic acid made around the roots of plants.** *Auxins shut down the powerful growth effect of light on nitrogen in the leaf.* This effect begins in the soil around the plants roots where the microbes exist. When the ground is warmed by light, auxin levels rise in the plants roots. Remember, tree and plant roots are in the ground where the magnetic flux from earth is present. Plants are always connected to their environment. Higher temperature effects magnetic flux, by lowering its power and energy. Simply put, heating lowers magnetic flux and cold increases it because of the relationship to the Curie point. *Since plants are always connected to their fuel source (sky/dirt), unlike animals*, they must respond to the negative feedback control of auxin on light.

Animals also have a negative feedback control thermostat between their gut microbiome and first cytochrome mediated by small molecular weight proteins like auxins. ***They only function optimally when mammals live a connected life.*** Wild animals do this easily, but humans break this rule because they create their own environment. This is why why ***wild animals rarely get cancer***, but zoo animals and those in human captivity often do.

SIRT 1 is one of these proteins, and this is why it links to NAD^+ in mitochondria. NAD^+ responds to blue light signaling. Both of these proteins link to oxygen levels in tissues and around mitochondria and the nucleus of cells. **The oxygen levels dictate the free radical signals a mitochondria can make.** Pseudohypoxia lowers NAD^+. *This is why pseudohypoxia is*

such a powerful predictor of aging and neolithic disease generation. The difference for animals compared to plants is they can easily lose control of their negative feedback control in the microbiome because their guts are not 100% connected to the Earth magnetic field during day or night.
This makes animal microbiomes very sensitive to pH and temperature changes in their gut, specifically. This is very similar to the effect of pH and temperature of the soil's microbiome around their root structure. This alters the ability to form Rayleigh Benard convections in cellular water.

It also affects the rates of NADH/NAD^+ coupling in mitochondria. Remember that inflammation anywhere in the body carries a net positive charge from excessive proton production. Protons are stored in our mitochondrial matrix and released in our cytochromes as signaling molecules. Too many protons in a cell lowers its pH and raises its temperature. A lower pH and higher temperature are also associated with loss the DC electric current and lowered DHA levels in cell membranes and tissues and *leptin resistance.* This is where the CT protocol came from. You might be observing where the Leptin Rx really came from now, too.

The gut microbiome acts physiologically very similar to the soil bacteria that surround a plants root where auxins are made. When the gut microbiome becomes aerobic is drives growth of eukaryotic cells. This stimulates NADH production and lowers NAD^+ at cytochrome 1. This increases biomass production via carbon cycling in mitochondria. Cells swell like they are going to divide. To divide a cell needs light release timed properly in the cell cycle during mitosis. This light and growth signal cannot be properly yoked when circadian signaling is awry.

Believe it or not, the plant auxin hormone is capable of providing negative feedback control in animals when it is

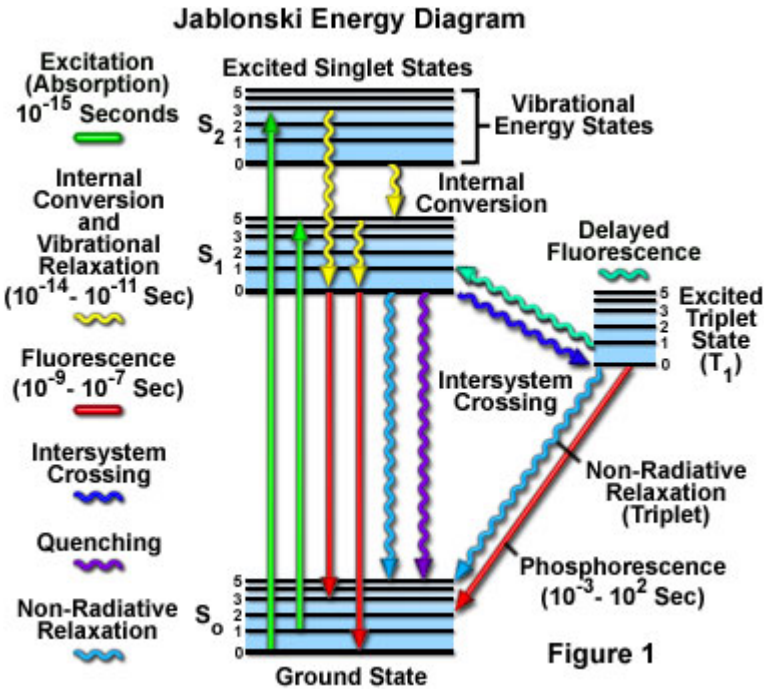
given exogenously to them. Animals can even harness the power of photosynthesis in plants when they eat them. Animals do not make auxins however. The physiologic changes seen in the flux of excessive proton production with simultaneously lowered electrons liberation can alter the gut flora's speciation and overall numbers. This is controlled by altering the amount of oxygen present (GERD). Pseudohypoxia is a strong stimulus to bacteria to change their terminal electron acceptor in their biochemical pathways. *This also changes the amount of ELF-UV light released from cells, the amount of hydrogen gas liberated, and the ratio of singlet or triplet superoxide generation released from mitochondria*. This means the gut flora is fully capable of making a physiologic change from an anoxic environment to an aerobic one with massive changes in signaling to control quorum sensing. Still think those paleo guru's are right that it is all about diet and exercise?

Healthy flora should be predominately anaerobic to control the flow of higher powered electrons to NADH in cytochrome one. These electrons carry high powered blue frequency photons on them. This is why carbohydrate ingestion is associated with NADH levels. If these photons are present in all seasons chronically because we break seasonal eating, we lose negative feedback control between the microbiome and cytochrome 1. **This is how surface chemisty of the gut can lead to a disease like metabolic syndrome.** It is essentially a circadian mismatch scenario because the animal is not connected to the light or magnetic flux of its environment. In this way SIRT 1 levels are altered with NAD^+ and inflammation is the net result.

If the inflammation is occasional it can be overcome. If it is chronic it leads to serious pseudohypoxic changes and diseases of aging. When this scenario occurs, light is uncoupled from

nitrogen cycles, and ubiquitin rates increase and cells lose their growth control mechanism from the cell cycle. This increases epigenetic expression and growth is stimulated. ***Fundamentally this is how oncogenesis manifests in animals who are disconnected from their environments.*** Today, medicine is loking for cancer's cure in the genome. This blog shows you why we have failed to find cancer's real problem. It is an epigenetic one buried in a disconnected environment we create for ourselves or animals whose environments we affect. Light and nitrogen meet in cytochrome one of all animals with mitochondria because cytochrome 1 uses NADH and NAD^+ to handle electrons made from carbohydrate food sources. These meeting places are where fluorophchrome proteins exist to interact with light.

The electronic state of a molecule determines the distribution of negative charge and the overall molecular geometry. Life is really all about the overall negative charge (electron) because of this relationship. For any particular molecule, several different electronic states exist. These wholly depend upon the total electron energy and the symmetry of various electron spin states. Each electronic state is further subdivided into a number of vibrational and rotational energy levels associated with the atomic nuclei and bonding orbitals. *Everything is quantized because of these particular arrangements*.



The various energy levels involved in the absorption and emission of light by a fluorophore are classically presented by a Jablonski energy diagram, named in honor of the Polish physicist Professor Alexander Jablonski. A typical Jablonski diagram illustrates the singlet ground (S(0)) state, as well as the first (S(1)) and second (S(2)) excited singlet states as a stack of horizontal lines. The ground state for most organic molecules is an electronic singlet state in which all electrons are spin-paired (have opposite spins to = 0). *Free radicals have unpaired valence electrons hence they are considered excited states.* They are capable of signaling using Type 1 or Type 2 reactions. They are also capable of being entangled by monochromatic light to become quantum coherent.

With ultraviolet or visible light (common AM sunlight combination), common fluorophores are usually excited to higher vibrational levels of the first (S(1)) or second (S(2)) singlet energy state. All cells have been shown to release ELF-UV light to cause this excitation of proteins to elicit proper signaling. We need to thank the Russians for this brilliance.

At room temperature, very few molecules have enough internal energy to exist in any electronic state other than the lowest vibrational level of the ground state, and thus, excitation

processes usually originate from this energy level. Light is capable of changing this quickly because light can carry a lot of energy and not be encumbered by atomic mass. ***This is why and how light is used in quantum biology to maintain of change signaling.*** *Anyone who tells you its about food and exercise exclusively is tell you they are clueless.*

Intrinsic fluorophores, such as aromatic amino acids, auxins, neurotransmitters, porphyrins, and green fluorescent protein, are those that occur naturally. Extrinsic fluorophores are synthetic dyes or modified biochemicals that are added to a specimen to produce fluorescence with specific spectral properties. These are used in photodynamic therapy. An example would be methylene blue. The plot thickness as the series continues…….

CITES:

Common to the last few blogs.