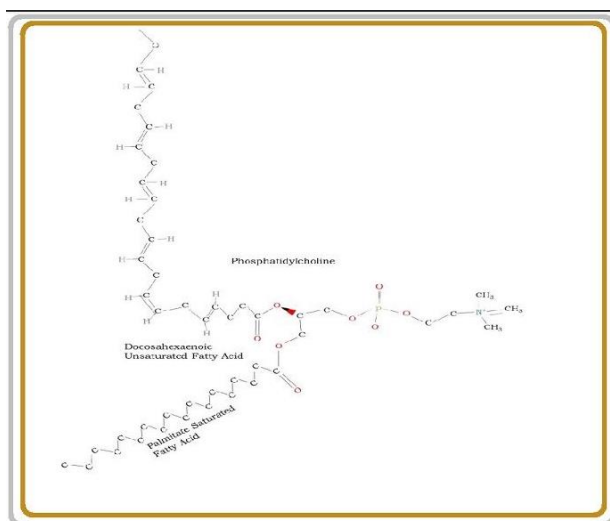


Certificate of Need Health Resources Planning Areas are mentioned to counteract roemer's dynamics, stabilize Certificate of Need Health Resources Planning, and support Narrow Networks which counteract roemer's dynamics, utilizing systems and social institutions in a wider context, particular through shared Human outcomes optimization assurance priorities. Services performed in health Resources Planning Areas and Certificate of Need Health Resources Planning Areas to abate and counteract any other than beneficial correlations when increase in health resources or increase in health facility resources occurs including changes in ratios of health resources when compared to population levels.



Phosphatidylserine, phosphatidylethanolamine, methyl hydride shift carbocation of s-adenosylmethionine to ionize its sulfur to a cation, transfer of s adenosyl methionine or other thetin/thetine methyl/hydride, phosphatidylmonomethylethanolamine, phosphatidylmethylethanolamine, phosphatidylcholine enriched with docosahexaenoic acid, palmitoylate first fatty acid in fatty acid beta oxidation, oleoylate, extended length arachidonic acid, omega 3 fatty acids, ether linked fatty acids. NAD⁺ and thermodynamic enabled inversion of choline oxidation, resulting in n,n,n glycine Betaine or trimethylglycine, betaine aldehyde, and Choline. n,n,n glycine betaine or trimethylglycine, B6 Vitamins, methionine via BHMT. S methylmethionine sulfonium exogenously originated substrate, B6 and Methionine via BHMT2. B12 methylcobalamin and Methionine Synthase MET of homo sapiens, along with folate as 5 methyltetrahydrofolate resulting in methionine and reconstituted methylcobalamin.

Methionine, possibly a unique fraction of available methionine derived from recycling of monomethylated cysteine, methionine synthetase now known s adenosyl methionine synthetase integration of ATP into Methionine to causes the canonical activation of the methylene bridge in methionine in which a strong electron withdrawing Group attaches. Integrates or interacts with a methylene bridge to cause the methylene bridge to sequester hydride to complete its trio of hydrogen that seems to include only two hydrogens in its inactive status, but is either aromatically, virtually, or otherwise stabilized by potentials such as current in the environment as 2 eV⁻, eV⁻, fluorescent energy, or hydride in adjacent structures. The attachment of atp by

methionine synthetase, or s-adenosyl methionine synthase as it is now known, sequesters an electron from the sulphone hydridic character, resulting in cationic or positive polarity. The specific literature characterizes Hydrogen with 1 negatively polarized electron as e^- and 1 proton, molecular hydrogen as two of these, and hydride as H^- that is constituted of 1 Proton and 2 negatively polarized electrons as $2e^-$. Hydride is, materially, electron reduced hydrogen, because education is constituted of receiving and oxidation involves abdication or release of material. Activation of the methylene bridge by strong electron withdrawers materializes the hydride from its performance as an aether or its aether characteristics that speckle or weave hydride in areas, space, atmosphere, material, tissues and physiology. The materialization of hydride as an emitted, abdicated, transferred, materialized from environment, delivered by molecular process, or otherwise exhibited electron is similar to how an electron has superposition multiplicity until a photon causes electrons as material orbiting orbitals in energy levels with only positional probability to collapse into an exhibition of its particle characteristics, although it's other multiplicities such as wave function, energy function, and others are not abdicated.

Ionization of sulfur enhances the enzyme s - adenosyl methionine function as an enzyme. Phosphatidylethanolamine methyltransferase I of endoplasmic reticula, phosphatidylethanolamine methyltransferase III, and Phosphatidylethanolamine methyltransferase II of the mitochondrial associated membrane shared between hundreds of mitochondria and the endoplasmic reticula transfer CH_3 which is a hydride primed or hydride integrated methylene bridge that pump primes or jump starts the hydridic current pipeline and trains strong electron withdrawing groups to exhibit homologous current sequestration by getting such activities started. Specifically, the lone pair electron configuration of CH_3 and CH_3 itself is removed from s -adenosyl methionine to the Nitrogen of Phosphatidylethanolamine in three successive transactions without changing the polarization or ionization of such Nitrogen and without changing the oxonium of the phosphate group, particularly because methylene divinyl patterns in fatty acids that are attached to the sn-1 location through methylene bridge and an oxygen, all result in efficient current management throughout the molecular structure. Methionine abdicated hydridic character transferred by PEMT must also be considered because methionine function enabled by methylene bridge activity is involved in tertiary and quaternary structure of more than one-third of all known proteins including tens of thousands of proteins which exhibit 10 or methionine methylene bridge intramolecular links, including many which exhibit hydridic and methylene character as much as or prevalent to exhibition hydrophobic character typical of methionine.

CH_3 and its constitutive hydride, and also phenyl moieties and tricyclopropane propane exhibit carbocation rearrangements that move hydridic centers and distribute hydridic character in ways that include resonant influence that stabilizes carbocation experiencing molecules. Electron Transport pathway of oxidative phosphorylation freeing of hydride from NADH as $2e^-$ and as fluorescent influence along with utilization of as much as about 58 percent of such energy to fund evenly distributed utilization by the different phases of the electron transport pathway, resulting in integration of about 42 percent of such energy into the oxonium exhibited between the phosphate groups of ATP or Adenosine Triphosphate. The attachment of ATP to Methionine, enhances the hydridic character of methionine which exhibits a methyl group with likely

experienced carbocation rearrangements, hydride shift and methyl group shift which are integral stability enhancers for carbocation experiencing molecules.

Dimethylsulfide and 5,6,7,8-methyltetrahydrofolate being used by TTMT or trimethylsulfonium tetrahydrofolate methyltransferase to produce trimethylsulfonium and 5-methylene tetrahydrofolate to provide methylene for carbocation potential, 5-methyl tetrahydrofolate for both tetrahydrobiopterin synthesis and methionine synthesis, as well as supply trimethylsulfonium substrate for thetin methyltransferase function along with sulfur to free the intermolecular deactivating disulfide linkages in thetin Methyltransferase enzymes that causes this most abundant enzyme to enter a gel phase, while trimethylsulfonium, dimethylthetin, and several other substrates causes 700 times more potent metabolic recycling methylene bridge cysteines into s-methylthioglycolic acid desquamation factor used to produce vast therapeutics through derivatization as well as producing methionine.

Amide translation into Nicotinic Acid Adenine Dinucleotide, adenylation of Nicotinic Acid Adenine Dinucleotide, followed by ATP and Mg^{2+} enablement of synthesis of NAD^+ and AMP from the adenylated Nicotinic Acid Adenine Dinucleotide, although complete B vitamins including niacin or niacinamide perform as substrate for NAD^+ synthesis, Glucose 1,6 Phosphate to Pyruvate produces NAD^+ in the glycolysis pathway although PEMT function may be required to enhance this regeneration, while nicotinamide phosphoribosyl transferase metabolism of 5-phospho alpha D ribose 1-diphosphate, H^+ and nicotinamide metabolism towards beta nicotinamide D ribonucleotide and diphosphate to relieve nicotinamide methyltransferase production of cysteines with methylene bridge moieties, while melatonin assist recycling of and+ through biorhythms and NAD^+ precursors may be optimal because synthetic NAD^+ may be inadequately absorbed and NAD^+ to $NADH$ ratio can have different ranges in cytosol, mitochondria, and in duration of fluorescent moment.

Indolethylamine methyltransferase production of S – Adenosyl methionine and a tertiary amine from a methylated tertiary amine, H^+ and S adenosyl L homocysteine. Serine and B6 usage by cystathionine beta synthase to produce cystathionine, along with use of cystathionine by cystathionine gamma lyase to produce cysteine and alpha ketobutyrate, while alpha ketobutyrate is directed toward propionyl CoA using CoA SH and NAD^+ , characterizing the nearest phases of transsulfuration pathway which is activated generally when a thiol is removed from methyltransferase catalytic products and transferred to cysteine which does not have a methylene bridge because a methylene bridge enables escape of cysteines from the transsulfuration pathway into pathways which recycle cysteine exhibiting molecules otherwise into methionine.

Sulfur and Methyl Group supplementation to metabolize hormone and glucocorticoid factors, along sustainment of methyltransferases that integrate CH_3 into phospholipids instead of freeing CH_3 from management of homeostasis, resulting in integration of Hydride into cellular membranes, increase density of phospholipids in cellular membranes, increase number of cellular entities per micrometer of tissue, and enable systemic pH of near between 7.2 and 7.6 that is involved in assuring consciousness, cognitive function, and vital being. Water or H_2O is essential because it assures that intramolecular and intermolecular interactions occur with intended and optimal throughput, velocity and consistency, as well as enables particular

molecular phenomenon, including hydridic, hydrogen, hydrophobic, hydrophilic, and particularly including methionine and methionine carbocation occur in physiology. Clean, filtered and sometimes supplemented water, can substantially enable physiology while betaine and other factors are known to stabilize the quaternary structure of biologically active molecules by performing as osmotic assurers of the shape, twist and writhe that typifies the interaction of biologically active molecules with living structures, tissues, glands, organs and anatomy.

Assuring exhibition of DHA enriched phosphatidylcholine, through synthesis within biological systems and otherwise, substantially assures these factors and pathways.

Particularly, efficient and agile management of sulfur carrying amino acids that have methylene bridges toward recycling into methylated versions with subsequent adenylation, carbocation, and Ionization of its sulfur, and alternative transsulfuration in which methylene bridges are changed towards cystathionine, alpha ketobutyrate, cysteine and glutathione, although methylene bridges in cysteines qualify cysteines for inclusion in methylene bridge sulfur carrying amino acid metabolism. Methylene bridges promote strong energy potentials used in biology such as participating in hydride, methyl, phenyl shifts, such as in S-adenosyl methionine in which, instead of freeing $2eV^-$ and fluorescent influence when hydride is oxidized or freed from NAD^+ or NADPH, shift of hydridic character occurs in carbocation rearranges in a controlled way preventing abdication of the hydride while using the $2eV^-$, ionizing the sulfur, and exciting the microenvironment which includes excitement of the outer incomplete energy levels and orbitals that are shared by all atoms of the universe, or metabolism, which is an antonym for nanoplasm or the empirical representation of any material or group of atoms in a defined space.

Methylene bridges are if such structural eluding if biological activity and energetic sequestration that if methylene bridge cysteines are not reduced by methyl groups which donate hydridic character to or reduce methylene bridge cysteines, then these oxidized or unmethylated cysteine bridge cysteine may attach to or sequester hydridic character in biologically active or living molecules in a manner that is integral to all diminished Human outcomes in correlation to $\mu m/L$. Asymptomatic $15 \mu m/L$, symptomatic $10 \mu m/L$, are admission heuristics for interventional alleviation of unmethylated or oxidized methylene bridge cysteines, while therapeutics and proactive care objectives are 7, 6, and toward $3.7 \mu m/L$.

L-arginine is essential to alleviate diminished hexose sugar endocytosis if PEMT and Choline de novo exhibition emerges by enabling vasorelaxation vascular repair, distribution of insulin from Islets of the hepatic, renal, pancreatic axis to other areas of anatomy, while diversity of hexose sugar versions such as mannose and active hexose correlate compound as well as assured PEMT function, all current or surmount as well as assure Pentose phosphate, hexose monophosphate, glycolysis pathway mining of hydride from sugars, hexoses, and from the oxonium between the phosphate groups of ATP where hydridic character is packed when the electron transport pathway of oxidative phosphorylation frees hydride from NADH or NADPH resulting in freeing of $2 eV^-$ of fluorescent influence of which about 58 percent is utilized about equally among the phases of the pathway, such that about 42 percent of the freed $2 eV^-$ per unit of oxidized hydride is packed or integrated into the oxonium integrated between the phosphate groups of ATP.

Such hydridic character packed into ATP can be donated to molecule during molecular interactions, across space, and resonantly resulting in a hydride, methyl, or phenyl carbocation or shift, as with ATP integration into methionine, donating hydridic character, moving the newly donated hydridic center and possibly shifting more distantly an already existing hydridic center, exciting or ionizing one of the molecular centers differentials such as the ionization of sulfur in methionine resultant of ATP integration into Methionine to produce the ATP adenylation methylation reduced methylene bridge cysteine known as s methyl methionine.

Methyltransferase or methylpherase freeing of CH₃ or methyl groups from s methyl methionine oxidizes the CH₃ from a carbocation strengthened or rearranged hydridic center distribution about the methylene bridge, resulting in a enhanced, freed, center of biophysics that is participative in the caustic quaternary ammonium structures that strongly sequester space in the biome while also eluting from abiotic/inorganic phases those factors useful for biology for transfer into biotic/organic phases. This sequestration potential of methylene bridge cysteines of space in the universe in which biology life and Humanity emerges, persons and advances, must be made by reducing activity, structural deteriorating, recycling or otherwise directing of these methylene bridge cysteines toward application to prevent potential massive deactivation of hydridic centers in biologically active or living molecules that is integral to all diminished outcomes.

Indefinite sustainability of physiology, thus, is able to be correlated with level of PEMT function and exclusion of increased um/L of unmethylated methylene bridge cysteines excepted rapid flux, and beneficial anabolic application. Correlatively, experimentally confirmed ability to regenerate major functional nuances of anatomy to exhibit spontaneous functional biological rhythms including regeneration of essential splanchnic system anatomical elements outside of anatomy along with exhibition of spontaneous physiological rhythms in these anatomical elements outside of the encompassing anatomical compartment without requirement of anatomical support, thus clearly presents prevention of prolonged, intensive, or chronic nonephemeral nonresolution cytokines and prevention of increased um/L of unmethylated methylene bridge cysteines, each of which are typically inversely correlated with PEMT production of enriched phosphatidylcholine, from occurring. PEMT function assures optimal cellular entity density per micrometer of tissue, adequacy of cholesterol which can comprise 85 percent or more cellular membrane structure, fundamentally changes presumptive nuances of conventional health assay and therapy.

Resolvins, neuroprostanes, freed fatty acid, docosahexaenoic acid, macrophage M2 polarization toward orbiting production by arginase, other resolution phase cytokines or factors, derivatives of these, and numerous other capabilities are concluding, stabilizing and resolution phase factors. Cysteine as well as methionine are carbonate buffering system participants, while DHA diminishes strongly exhibited methylene bridge anabolic building phase activity including diminishing of methylene bridge deactivation of trypsins that would otherwise dissolve serine intramolecular linkages in a way that promotes clean environmental plasticity compared to anabolic differentiation, although methylene bridges benefit from sequestration of magnetic metal molecules used to produce permanent magnet indefinite clean energy without fuel or byproducts. Methylene bridges participate in these microenvironments to Universes level fields

by attaching to these permanent magnet competent metals, drawing current flowing through such fields or sequestering current actively from such fields.

The matrix protein agrin emerges at conception and enables exhibition of capacitance fields that that develop into consciousness, coordinates pervasive anatomical development, aggregates acetylcholine receptors to produce innervation, galvanize regenerative repair, enables stable and functional hematopoietic stem cellular and tissue stem cellular development, as well as monitors extracellular matrix plasticity to respond with mitotic signaling and secretory signaling which enables laminin, other matrix protein, and other connective tissue protein synthesis. Correlatively is coordinated the build phases of which methylene bridge proteins are integral to, including trypsin resistant, serine protease resistant methylene bridge NH₂- structures in cysteines.

The exhibition of methylene bridges in these contexts sequester capacitance or current from intramolecular or extra molecular environment, to Universes level magnetic and electromagnetic fields, and apply these toward construction from foundational physiological compartments to the anatomical compartments themselves, while capture of hydride oxidation freed 2 eV- by membranes in correlation to insulating ether linked fatty acid availability in cellular membranes, magnetic field interactions used in permanent magnet sustainable energy dynamics, and membrane phospholipids which increase superconductor temperature thresholds of efficiency toward the physiological temperature range, while also physiological pressurization and thermodynamics enable fundamental interactions, such as hydrolysis of the water molecule, nearer to physiological environmental parameters, all present methylene bridge and methylene bridge cysteines as an oscillating mechanism that informs status of indefinitely sustainable physiological energetics.

Organisms and mammalian tissue have extraordinary regenerative potential. Bereft of scarring, regenerative, repair, sustainability, resilient to diminished outcomes physiological capabilities are positively correlative with PEMT level of function, substrate access, and copy number of PEMT genomic sequences, all in a way that is correlated with management of methylene bridge cysteines toward either methylation and subsequent adenylation, or toward transsulfuration, or both although proteolysis, autophagy and ubiquitylation processes can each also diminish how unmethylated and unadenylated methylene bridge cysteines integrally and essentially participate in nonoptimal, diminished outcomes. Particular interleukins and particular metalloproteinase enzymes participate in regenerative repair, as does agrin and laminin processing that enhances the structure of connect tissue and extracellular matrix.

Correlatively, biophysics phenomena in which any defined space in biology may behave as any material essential to sustain metabolism long as that defined space has enough electrons, protons and atoms to transitively approximate the nanoplasmonic empirical representation of such essential metabolic material, through space jumps in which electrons of unattached or transitively attached atoms move just in time to enable essential metabolic interactions, tunneling of electrons through impeding limitations to potentials and through the nucleus, and resonant or aromatic sharing of electrons and hydridic character without being attached, all are mechanisms of physiological resilience and stability which benefit from environmental, nutritional, hydridic, methylation, cholinergic adequacy, and phospholipid stability.

However, availability of sulfur or thiols without methylene bridges supplies sulfur to integrate with intramolecular sulfide of Thetin unmethylated bridged cysteine methylpherase, thereby linking sulfur adequacy with preventing deactivation of this beneficial enzyme because intramolecular disulfide bridges occur in this most physiologically abundant enzyme during sulfur inadequacy. SP1 genomic sequence copy number increases in the folds of G quadruplexes and are counteracted by G quadruplex Stabilization as well as is counteracted by diminishing SP1 activity, thereby preventing SP1 increase of telomerase to diminish telomerase replacing of telomeric repeats when they are removed by DNA Replication primer activity during each cellular division.

Telomerase and Alternate Replacement of Telomerase enzymes both are beneficial in PEMT functional, unimproved cellular entities, cellular lineages, and tissues. G quadruplex stabilization and counteracting of SP1 also prevent SP1 diminishing of immunological CD4+ availability and diminishing of CD8+ availability, as well as prevents SP1 enabled increase of PD1 AND PDL1 receptors which all perform obscuring of cellular entities, impaired and unimproved, from immunological Synapse monitoring, counteraction, removal, or introduction of senescence. AP1, when increased, just as SP1 is a deactivator of PEMT when increased, is a nonresolution cytokine.

AP1, constitutively, includes telomeric attrition because it diminishes the activity of telomerase in a way that decreases the number cellular divisions that a divergent cellular lineage incurs before chromosomes fuse to disable additional proliferation. Counteracting SP1 and assuring stabilization of g quadruplexes prevents SP1 increase in telomerase and Prevents SP1 enabled obscuring of impaired cellular entities or impaired tissues from immunological control, as well as correlatively. SP1 deactivation of AP1 enabled rapid telomeric attrition toward senescent impedance to mitosis along with obscuring of cellular entities from immunological control by SP1 which allow proliferation of impaired or commandeered cellular entities, cellular lineages and tissues, are all counteracted by counteracting SP1 and assuring stabilization of G quadruplexes.

Assuring stabilization of G quadruplexes and counteracting increases in SP1, prevents prolonged mitotic lineages and proliferation of impaired cellular entities, impaired cellular lineages, and impaired tissue proliferation, all of which are integral to latent diminished outcomes or latent conditions. Counteracting PEMT and stabilizing G quadruplexes particularly allow immunological control and allow AP1 to increase rapid exhibition of senescent attrition of telomeres, preventing prolonged impaired proliferation and eventual dissociation of the hundreds of mitochondria in each cellular entity from endoplasmic reticula which disrupts the supply of phosphatidylserine, phosphatidylethanolamine, Ca²⁺, phosphatidylinositol and other factors from endoplasmic reticula to mitochondria through the mitochondrial associated membrane.

The enzyme version PEMT2 IS a transmembrane protein woven through the mitochondrial associated membrane and exhibited near conclusion of gestational development to control cellular, tissue and anatomical development. Assuring optimal function of PEMT prevents canonical and noncanonical modalities of diminished outcomes and diminished conditions by

assuring mitochondrial potential, mitochondrial capacitance, and control by the mitochondria over cellular outcomes using mitochondrial guided programs and mitochondrial involvement in signaling.

Methyl Groups are known to attach themselves to the leading edges of expanding structural lattices in biology, changing the vibrational, rotational and thermodynamic characteristics while abating expansion and anabolic aspects of structure, sometimes reaching one to one ratios with atoms at the expanding aspect of biological structural lattices.

The exhibition of Methyl Groups in membrane phospholipids including phosphatidylcholine as well as the reducing of structural potentiating methylene bridge cysteines by methyl groups strongly explain how and why physiological proliferation and deproliferation are linked to methyl group availability and methylene bridge cysteine availability, such that the watchful presence of Methyl Groups, PEMT and particularly mitochondrial PEMT2 that emerges near transition from gestation, are important control mechanisms that sustain regressive repair and regulate species specific size. Metabolism and structural characteristics.

The solvation or hydration shell constitutes a differentiated, molecule specific encapsulating H₂O sheath that is distinct in molecular, ionizing, and Michaelis as well as velocity of interactions and movement when compared bulk water beyond the 2 angstrom base shell and particularly beyond the 15 angstrom extended hydration shell. Intramolecular characteristics and catalytic activity, as well intermolecular characteristics and catalytic activity, including compound molecules and closely linked molecules with overlapping hydration shells are all shaped by the Hydration shell dynamics which can promote not only planar behavior of the solvation shell but also can cause ligand or biological molecule catalytic interfaces to more precisely mimic experimental pharmacologically derived estimates of ligand behavior, particularly when between 70 and 10 water molecules comprise the solvation sheath within a subdomain of a macromolecule or when between 10 and 70 water molecules comprise the Hydration shell of a molecule. But inclusive of folds and overlaps that can occur between subdomains of compound molecules or such overlaps that can occur between closely linked molecules.

This essential revealing perspective explains why small molecule therapeutics have become a priority in nutrition and therapeutics, although protein transduction therapy has already used purified transduction domains to insert large biologically active domains into each cellular entity in physiology with the efficiency of a water molecule. Distinct water network motion characteristics are observed up to 20 angstroms away from the molecular surface, suggesting that solvation shell chaperoning begins 20 angstroms away from the molecular surface.

Actively managing methylene bridge cysteines prevents the potential of methylene bridge cysteines to occupy fibronectin, preventing also increases in free fibrin, as well as preventing deposit of occupied fibronectin in tissue such as cardiac tissue.

The active management of methylene bridge cysteines, therefore, prevents fibronectin from increasing the occurrences of Fibronectin connection between cytoskeleton and the extracellular matrix where fibronectin has the potential to increase signaling which promotes tissue remodeling, changes to extracellular matrix, and promote fibronectin polymer assembly. This

connection imposes the effect of methylene bridges, changing both the characteristics of signaling at molecular and electromagnetic levels, but most importantly disrupting the characteristics of the foundational energies that link particles, waves, energy, superposition, angular characteristics and linkages between different instances of space and time, practically represented as changes to spatial interactions involving carbocation, hydridic characters, remote carbocation/hydridic/aromatic balancing interactions, and foundational remote programming of the environment by hormones, agrin, RNA, DNA and fields that orchestrate physiology.

Methyl bridges must be encapsulated because they are foundational biological polymerizing linkages that enable fatty acids sequences, DNA and RNA sequences, and enable alkanes that promote alkalinity necessary for mundane amino acids, such as s adenosyl methionine to become enzymes and exhibit carbocation rearrangements in which hydridic energy is free at intramolecular levels without releasing the hydride that is separated from its original incipient location, similar to how a filament in a light bulb is excited by current to emit electromagnetic energy. Methylene bridge cysteines, when activated by biosynthetic groups that are strong electron withdrawing groups such as those with nitro, nitrile, carbonyl or others, resulting in methylene bridge sequestration of e^- , current, or the additional e^- integrated into hydrogen to produce hydride H with $2e^-$ electrons and typically 1 proton, which is woven into the biome and universes somewhat pervasively and which almost every if not every atom foundationally uses as a superclass from which such nonhydrogen atoms are derived as subclasses, at least from a logical perspective. Methylene bridge activation sequesters the e^- that it is already attached to remotely in the aether of the Universes, galvanizing metabolism, flow of electrons, through space jumps of electrons, enabling molecules and atoms to perform as essential molecules even when the electron configuration of atom is not precisely what is required or when nanoplast is not precisely configured as required, producing tunneling of electron through impedance and limitations, as well as producing biosynthetic activity and even movement or chemotaxis that results in delivery of e^- . Hormones and glucocorticosteroids exhibit biologically relevant symmetry and offset from symmetry while exhibiting hydridic patterns that weave hydridic fields into the aromatic hexamer that emits resonant or remote control of diverse aspects of molecular activity and metabolism, including exhibiting remote carbocation interactions and shift of hydridic character. These analyses often present that every outer incomplete energy level or every outer energy level outside of a completed energy level might be considered as a shared energy level among all atoms of the universes, practically explaining these phenomena although these also explain quantum entanglement as a result of enhanced direct particle exchange between material of the universe along with encompassing influences of the Universes.

However, methylene bridges produced by many methyltransferases result in freed unmethylated methylene cysteine bridge factors that must be encapsulated to prevent being utilized in dysregulated polymerization. Transsulfuration translates methylene cysteine bridges into cysteine without methylene bridges. Numerous pathways recycle methylene cysteine bridge into methionine that is used in synthesis of 99.5 percent of genetic transaction products because methionine is a foundational enabler of DNA and RNA polymerase primer sequences required for attachment of polymerases to begin synthesis at least at the T-RNA level within ribosomal molecular machines. Methionine can then become adenosylated to produce s – adenosyl methionine, resulting in the hydride within the oxonium between the phosphate groups of

methionine becoming rearranged or experience carbocation that results in ionization of the Sulfur of Methionine, although it is the methylation that results in production of methionine that encapsulates or reduces the methylene bridge of methylene bridge cysteine, according to the literature. Importantly, methylene bridge is the gateway through which Hydride in the aether of the Universe becomes systematically integrated into physiology to become molecular energy, become translated into chemical energy such as pyruvate produced in glycolysis, become mined by the electron transport pathway of oxidative phosphorylation to become ATP for instance, derivation of pyruvate from Glucose, freeing of molecular and chemical energy as 2 eV-, reintegration of eV- through RET, integration of Hydride into physiology such as through PEMT packing of hydride within CH₃ into the three open location of the nitrogen within phosphatidylethanolamine to produce Choline head group, synthesis phosphatidylcholine, packing 3 CH₃ molecules into the nitrogen which balances the methylene bridge at the SN1 fatty acid moiety, balances the fatty acid alkane in the SN-1 position, balances the oxonium in the phosphate group between the head group and the fatty acyl integration loci. Importantly, methylene bridges are included as activated bridges in CH₃ such that the nitrile group performs as an electron withdrawing group and the 3 CH₃s seem to be constituted activated methylene bridges with hydride already sequestered and integrated since the third Hydrogen in CH₃ is considered to be hydride, according to the literature.

Relevantly, the Warburg Effect in which upregulation of Glycolysis as aerobic glycolysis to produce the between 29 and 32 molecules of energy instead the about 6 or more during anaerobic glycolysis provides useful example. Inhibition of aerobic glycolysis occurs because of P53 and decreased NAD⁺/NADH ratio, both linked to inhibition of PEMT1/PEMT2/PEMT3 but particularly decreased levels of mitochondrial PEMT2 during most diminished phases of almost every diminished health status. P53 pathways and the CDP - Choline pathway is upregulated automatically when PEMT is inhibited.

Supplementation of phosphatidylcholine, experimentally, causes a decrease or cooling of thermodynamics in the microenvironment compared to production of phosphatidylcholine in the cdp-choline pathway because the cdp-choline produces phosphocholine that is used by numerous pathways as an energy molecule including pathways used by pathogens and pathways used in pathology, particularly platelet activation and complements immune system activation which phosphocholine can perform constitutively, presenting why activity by PEMT as a producer of resolution phase fatty acids integrated in newly produce choline as phosphatidylcholine is beneficial in the about 30% fraction of phosphatidylcholine or higher which PEMT produces compared to about 70 percent or lower synthesis of phosphatidylcholine by the cdp-choline pathway using already non de novo choline typically obtained from nutrition or from phospholipase/phosphodiesterase lipase catalytic activate at cellular membranes. It is now known that riboflavin is an enabler of cholesterol and fatty acid synthesis and in many ways enable hormone pathways that produce PEMT, such that it is now essential that all B vitamins be included as a foundational of any nutritional or therapeutic regimen. Particularly, the inhibition of PEMT prevents the packing of Hydride into and locking of Hydride into the electron withdrawing nitrile group that balances one of the methylene bridges maintained from its phosphatidylethanolamine while removing the other methylene bridge. This important pathway of ethanolamine as an essential nutrition which supplies substrate to the cdp-ethanolamine

pathway, resulting in production of phosphatidylethanolamine, produces an encapsulation of two methylene bridges that are encapsulated in phospholipid as substrate for PEMT catalysis and which can be redirected toward attachment catalysts for autophagy or toward pathways in which methylene bridges can be revealed and implemented by pathology promoting conditions or activity. The redirection of recycled methylene bridges reinserted into the cdp-ethanolamine pathway such as by ceramide to S1P to S1P lyase activity, or obtainment of ethanolamine nutritionally or supplementally or otherwise, during inhibition of PEMT, promotes conditions of intracellular clearing through autophagy compared to the cdp-choline pathway which enhances proteolysis by producing phosphocholine in two loci, choline kinase and aSMase/nSMase, that supply phosphocholine for enhanced autophagy, increase influence ubiquitinase pathways which are numerous, and reprogram cellular phenotype toward dysregulate metabolisms focused on sustaining membrane resiliency during inadequate levels of choline and inadequate levels resolution phosphatidylcholine. BAG3 promotes autophagy while BAG1 promotes proteolysis, although some conditions can become resistant and persist when BAG1 or the 26S, 20S or 19S proteasomes, immunoproteasome or other proteasomes are therapeutically disruptive, often requiring therapeutic decreasing of GSK3B, GPCR receptors, other S1P receptors, BCL2, or S1P Lyase which although depletes S1P can be a resistance pathway.

Methylene bridges and methylene bridge cysteines sequester eV^- , e^- , hydride or the extra e^- in H_{2e-1p} from its pervasive integration in the biome and aether of the universes particularly when methylene bridges are activated by strong electron withdrawing groups that typically are biosynthetic but can have effect otherwise. Such sequestration of hydride results in a multiplicity in which polymerization at the foundations of biology occur, alkane polymers occur which have alkalinity that transforms amino acids into enzymes or produces higher amino acid catalytic activity, resulting in translation of hydridic character or current between ATP, Glucose, Pyruvate, 5 Carbon Pentoses, 1 Carbon metabolism toward methionine, polymerization of Flavin/Ribitol as well as structure of Riboflavin and in both FADH and FADH₂, polymerization which produces NAD (NADP⁺, NADPH, NAD⁺ and NADH), DNA and RNA polymerization observable between phosphate group and pentoses although CH₂ in DNA and RNA within phosphodiesterase complexes which have negative polarization are counteracted by histones, methylation, polyamines and Mg²⁺, although the atypical D chirality of DNA prevents a diverse array of structural interactions possible from L chiral or achiral molecules. Importantly, methylene bridges are integral, alkaline influencing polymerization enablers such that when dysregulated, methylene bridges can be sequestered by differentiation and polymerization processing, dysregulate molecular and chemical energy, integrated into physiology to disrupt molecular and electromagnetic signaling as well as change the energies utilized to stabilize particle, atom, adhesion, spatial and angular characteristics that are essential to the characteristics of interactions in tissue, between monocytes, in basement membranes of tissue, and between monocytes and structure. Methylene bridge activation sequesters metabolism, chemotaxis, metabolic pathways, molecular interactions, movement of molecules, current, electrons in through space jumps, just in time through space jumps, tunneling through potential limitation, and reorganization of atoms and particles in define space to exhibit essential molecules, all to result in delivery of electrons to strong electron withdrawing groups which have sequestered such methylene bridge.

Methylene bridge cysteine is an amino acid exhibiting sulfur which is also a methylene cysteine bridge that, when untransformed into cysteine or unrecycled into methionine through methylation as well as potentially adenosylated to become s-adenosyl methionine, can have its methylene bridges become dysregulated and commandeered into pathology promoting differentiation, energetics, and polymerization, such that when methylene bridge cysteine is below 6 or 7 micromoles per liter, a 99.95 or more percent decrease in risk of the most substantial adverse physiological and behavior outcomes over a decade of observation among a population of about 10,000 compared to control populations of about 10,000. The enzyme PEMT packs methylene bridge cysteine that has sequestered hydride as a third Hydrogen, CH₃ or methyl groups, into the three possible orbitals exhibited in the nitrogen of phosphatidylethanolamine, resulting in phosphatidylcholine, while removing one methylene bridge from phosphatidylethanolamine and producing enriched fatty acids with numerous methylene bridges including a double adhesion divinyl methylene spacer at the SN-1 location, although SN-2 and SN-1 can both exhibit enriched resolution phase fatty acids, which all, along with oxonium in the phosphate group of phosphatidylcholine, provide unique, fatty acid alkene extents, packed hydride, and hydric oxonium to balance or stabilize the nitrogen cation. Resultantly, a highly stable most abundant phospholipid that is packed with energy is produced that is a foundational factor in development, regeneration and repair. Diminished PEMT catalysis results in remarkably diminished decrease of pyruvate because diminished PEMT results in P53 imposition of diminished Glycolysis and imposition of diminished pentose phosphate or hexose monophosphate shunt activity, although upregulation of the cdp-choline pathway also occurs when PEMT is diminished in activity. The cdp-choline pathway produces phosphatidylcholine that is not particularly enriched and uses recycled choline which has methylene bridges already integrated into the nitrogen of choline. Thus, when PEMT is diminished anaerobic glycolysis or diminished throughput in energy metabolisms occurs because the protective influence of a resilient mitochondria and its programming as well as optimal resolution phase fatty acid PMME, PDME and phosphatidylcholine, sequential metabolites produced by each addition of CH₃ to the nitrogen of phosphatidylethanolamine may not be adequately available. Aerobic glycolysis, which is considered to be involved in pervasive pathology, occurs when P53 suppression pathways become surmounted or dysregulated, resulting in increase in energy pathway throughput without the protective saving of energy into hydride packed phosphatidylcholine, balancing of energy throughput with savings, redirection of current or hydride toward structural resiliency, and the without the angular, hydridic, and other 'special' effects that occur in physiology to produce the typical, or not so typical, resiliency of biological systems. Aerobic glycolysis is known as the 'warburg effect.'

Hormones exhibit Hydrogen in patterns that weave hydridic fields from the upper right offset pentameter into the midline upper hexameter and then into the lower midline hexameter, followed by delivery into the lower leftmost aromatic resonant hexameter through a methylene bridge within a a divinyl methylene bridge, resultant in hydridic character in such lowermost resonant aromatic hexameter which is utilized in aromatic, resonant, through space interactions that program spatial aspects of biology through remote, spatial, angular, hydridic and ionic influences that enable development and sustainment of biology. Hormones, at these core pentameter and hexameter elements, exhibit close or strongly similar symmetry as the internal,

wet or splanchnic organ systems. Hormones and glucocorticosteroids, thus, do more than merely incompletely or completely integrate into and transactivate the perfect 13 sequence DNA estrogen response element which includes PEMT and number of transcription sequences otherwise essential for pioneering, regenerative and repair development, such hormones and glucocorticosteroids program development through remote hydridic shift, remote hydridic character, angular influence, spatial influence, ionic influence and in other ways. Conditions involving dysregulated or impaired hormones can typically involve the methylene bridges and programming influences in such regard as well as involve upregulated exhibition of dysregulated methylene bridges, as well as dysregulation of methylene bridge cysteines. Importantly, methylation is an important primary regulatory, deactivator and encapsulated of methylene bridges and methylene bridge cysteines as well as impedes the leading edge of polymerization structures, while also is utilized to detoxify hormones and glucocorticosteroids similar to sulphones or thiol molecules also detoxify or deactivate hormones through the COMT pathway, cytochrome P450 pathway, and in other sulfur pathways inclusive of the transsulfuration that structurally deteriorates methylene bridge cysteine to cysteine. Recycling pathways for methylene bridge cysteine and s-adenosyl methylene bridge cysteine are major pathways of stabilizing. The major pathway for methylene bridge cysteine and dysregulated unencapsulated methylene bridges are in their ability to sequester current from any location in which hydride has been woven into the aether of physiology, the biome and the universes, particularly because these disrupted signaling, metabolisms, tissue structure, extracellular matrix structure and signaling, agrin structure and signaling, as well as disrupt the energies that constitute the foundational aspects of matter and material of the Universes.

PEMT production of PMME, PDME and enriched phosphatidylcholine, as well as pathways that manage methylene bridge cysteines such as the methylene bridge cysteine methyltransferases, along with supply of biologically essential nutrient ethanolamine through nutrition and recycling with its constitutive encapsulated methylene bridges, followed by supply of phosphatidylethanolamine at the conclusion of the cdp-ethanolamine pathway as substrate for PEMT production of enriched PMME, PDME and phosphatidylcholine, all constituted covalent quaternary ammonium, inorganic phase to organic phase transfer agents, all of which can be utilized to structurally deteriorate pervasive carcinogens in the natural universes as well as are used to clean up toxic industrial wastes. These pathways are the foundations of physiology and are required to be impaired, deteriorated or disrupted in pervasive if not all disease. Lecithin or mixed phosphatidylcholine/Choline suspension, has been known of since the middle aspects of the 1700s. Methylene cysteine bridge has been known of and represented in the clinical literature, since 1810. Dimethylthetin has been known of since 1878 as potent depletion capability for methylene cysteine bridge, nearly 700 times more potent than pervasive pharmacological therapies or therapies otherwise. Danshen, salvia m., or red sage, which depletes homocysteine through the transsulfuration pathway is an ancient therapeutic which predates modern medicine, modern science and predates, according to some perspectives, exhibition of prevailing philosophies which prioritize human vital being and the philosophical nuances of care, by Humans, for one another in such a capacity.

Wholistically, biomedically, pharmaceutically or adjuvantly otherwise assuring that ICD-10 code E72.11, or elevated methylene bridge cysteine, is prevented or alleviated with an asymptomatic inpatient therapy at 15 um/L, symptomatic inpatient therapy or asymptomatic outpatient therapy

at 10 $\mu\text{m/L}$, Outpatient, out of office location therapy, or office location therapy above 6 or 7 $\mu\text{m/L}$ and with an objective of between 6 or 7 to 3.7 $\mu\text{m/L}$ is essential to both Human health and Human behavior.

It should be presented here that the one instance of adverse outcome among the population of about 10,000 over a decade of observation, may have been the result statistical nuance in which a perfect 100 percent was not possible, although the study presents that only 1 instances of the most adverse of outcomes occurred among populations with methylene bridge cysteine below 6 or 7 $\mu\text{m/L}$ while in the population of about 10,000 with methylene bridge cysteine above 6 or 7 $\mu\text{m/L}$ there were 500 of such adverse outcomes in the same duration of observation.

Importantly, alkanes inherently cause amino acids to exhibit catalytic activity and methylene bridges sequester current for application in development, structural synthesis, biosynthesis and metabolism, all from the hydride, current or eV - exhibited in the aether of the biome and the Universes.

The conclusion in this context is that when PEMT is optimal, Methylene Bridges are managed in pathways differently from when PEMT is functionally, mostly such that PEMT protects the environment for polymerization and biosynthesis to occur mostly by removing the limitations on glycolysis throughput and availability of chemical or molecular energy. Diminished PEMT function results in limitation of energy pathways to prevent excess molecular, chemical and polymerization phases of methylene bridge energy regulation, mostly through P53 pathways that diminish proliferation and energy metabolism and particularly because the storage of Hydride packed into phosphatidylcholine is also diminished. P53 limitations on metabolism, thus, when surmounted or diminished while PEMT and particularly PEMT2 is diminished in activity, s in conditions of dysregulated and upregulated molecular and chemical energy availability as well as results in increased availability of methylene bridges for redirection toward polymerization, although the most essential factor in this context is the diminished storage of Hydride and methylene bridges in the process that produces newly synthesized choline and phosphatidylcholine.

Thus, the diminished storage of methylene bridges, encapsulation of methylene bridges, and packing of hydride into cellular and physiological structure, along with dysregulated energy, is known as aerobic glycolysis which is only meaningful when compared anaerobic glycolysis because aerobic glycolysis can occur beneficially when PEMT is fully functional and fully catalytically bioavailable. PEMT removes a methylene bridge from phosphatidylethanolamine packs methylene bridges within CH_3 into the open locations within the nitrogen of phosphatidylethanolamine in a way that also packs hydride as the third hydrogen sequestered upon activation of the methylene bridge within CH_3 into the nitrogen, and balances the methylene bridge in the lead group, the oxonium in the phosphate group in the lead group connector, as well as balances the methylene bridges in the fatty acids linked by the methylene spacer in the connect to the SN-1 fatty acid location, although SN-2 location can also host fatty acids. The balancing of hydride in the positivity polarized nitrogen of phosphatidylcholine contrasts the obscured negative or alkaline polarity of the third hydrogen in each CH_3 , the oxonium in the phosphate group and the alkaline polarity of alkane linkages in fatty acids at the SN-1 positions and at possibly also at the SN-2 positions.

Experimental observation of poly ethyl acrylate has observed that it differs from poly methyl acrylate in that poly methyl acrylate has one less methylene bridge and this one less methylene bridge in poly methyl acrylate is accompanied by a methyl group which results in poly methyl acrylate being unable to promote or being enabled to actively diminish fibronectin polymer assembly.

The potential of fibronectin polymer assembly when poly ethyl acrylate and its methylene cysteine bridges are inadequately managed contrasts with the prevention of fibronectin assembly by methylation in a similar molecule poly methyl acrylate.

Functional assay of diverse fibrillation integration molecules including those involved in conditions involving fibril polymerization reveals that methylated methylene bridges are unable to promote or participate on fibronectin polymer assembly.

Precisely, the lead group of ethyl acrylate exhibits an increased number of methylene bridges and this increased number of methylene bridge moieties increases the motion of the lead group, producing a less dense and less stable hydration or solvation shell.

However, it is known that increased numbers of methylene bridges sequester more current and are more powerful invoking influences to anabolic structural processes and metabolic processes, explaining why preventing dysregulation of structural anabolic or anabolic conditions can include also prevention of the monopolization of energy by such conditions.

The contrasting role of ethyl factors in promoting polymerization compared to methyl diminishing or concluding polymerization, suggests that the enzyme PEMT, particularly mitochondrial PEMT2 which emerges near, in synchronization with, or subsequent to conclusion of gestational development, manages the reducing potential and polymerization potential of the antihistamine phosphatidylethanolamine by sequentially methylation phosphatidylethanolamine in three phases which shuttles phosphatidylethanolamine through three functional derivatives as phosphatidylmonomethylethanolamine, then phosphatidylmethylethanolamine and then enriched fractions of phosphatidylcholine. This phased promotion moves phosphatidylethanolamine into derivatives exhibiting acquired ligand and enzyme functionality that promotes embryonic plasticity, pioneering anatomical regeneration, serine protease, molecular simplification, environment cleaning, directed and explicit development programs, and stabilization of the solvation shell. Essentially, phosphatidylethanolamine provides shielded transport of methylene bridge juncture, two adjacent methylene bridge junctures, which benefit from the ethanolamine lead group mobility and diminished solvation shell stability by accessing current while the phosphatidylethanolamine structure prevents methylene bridges from performing in extensive structural polymerization but allows phosphatidylethanolamine to produce point reducing interactions constitutive of antihistamine function.

Phosphatidylethanolamine is a source of methylene bridges for glycosylphosphatidylinositol anchored proteins which invoke autophagy by performance as attachment loci for emergence of autophagosomes which essential for cellular sustainment, preventing increased comparative proteolysis, controls proliferation and controls metabolic commandeered changes linked to uncontrolled proliferation. Contextually, adjacent methylene bridges or multiple methylene

bridges 77 in phosphorylated ethanolamine's explains why increase in S1P lyase, which results in the depletion of the S1P pathways typically linked diminished outcomes but also results in hexadecenal and ethanolamine phosphate, culminates of resistant conditions, particularly because methylene bridges are recycled when ethanolamine phosphate produced during S1P lyase pathway catalysis is reinserted into the cdp - ethanolamine pathway.

Thus, ethanolamine as an essential exogenously obtained nutritional, metabolic and structural factor, as de novo ethanolamine as well as recycled ethanolamine, presents its exhibition of methylene bridge moieties in multiplicity in such capacity and presents dualities potentiated in correlation to management of methylene bridge availability and methylene bridge structural access.

Glycosylation of phosphatidylethanolamine tails diminishes its selection by PEMT, particular introducing preference specificity for lightly glycosylated or unglycosylated phosphatidylmethylethanolamine by PEMT in the third methylation sequence performed by PEMT which results in synthesis of enriched phosphatidylcholine. Such third sequential methylation is delayed by what the literature presents as slower catalytic kinetics, although, presumably, the slower kinetics have reason to be increasingly selective when producing the stable phosphatidylcholine compared to production of PMME and PMME which seem to be intended as caustic, volatile advocates of biotic phase exclusivity, serine protease and tissue plasminogen activation, inorganic to organic phase transfer of biologically useful factors, and generally enhanced plasticity. PEMT selectivity at PDME before exit of ethanolamine into the choline lead group phospholipid fraction, suggests that recycling is occurring to produce phosphatidylethanolamine, phosphatidylethanolamine is being produced from phosphatidylserine, or accumulation of glycophosphatidylinositol because of impaired completion of risk averting autophagosomes and impaired risk averting autophagy, all may be potentially occurring, although inadequate obtainment of ethanolamine may be integral to such context. Methylene bridge availability and management is an integral multiplicity in assurance of optimal health status.

Ethanolamine, like phosphinic acid, CH_3 , hydride, precursors to RNA, precursors to DNA, and other essential biological factors, has been incurred in interstellar space, and ethanolamine is an integral component of neurological membranes in a way that sequestration of current in fields that extend to universes level and participation in fields that are boundless temporally, each are presented as mundane nuances of physiological function.

Correlatively, methylene bridges are linked to agrin acetylcholine receptor aggregation during pioneering, reparative, and regenerative anatomical development as well as during physiological development programs through ethanolamine and in other ways, while preventing methylene bridge cysteine attachment to fibronectin and preventing depositing of the resulting complex to tissue along with preventing polymerization of the resulting complex upon extracellular matrix also prevents aberrant agrin signaling between extracellular matrix and fibroblasts, thereby alleviating potential for dysregulated mitogenic signaling, preventing confluent stability as an aspect of mitogenic signaling, as well as alleviating potential for the major pathway for organ deterioration which is granularization of extracellular matrix.

Agrin insertion is known to cause regeneration of organs and reestablishment of plasticity in extracellular matrix as well as enables regenerative reestablishment of plasticity in connective tissue.

Resolution phase phospholipases in particular, but also nonresolution phase phospholipases and phosphodiesterases free fatty acid by lysing membrane phospholipases during choline inadequacy or challenges to biological systems, such that LPCAT and MBOAT acyltransferases reintegrate free fatty acid into lysophospholipids to resynthesize phospholipids with shuffled fatty acid signatures. Phospholipid plasmalogens, such as phosphatidylmonomethylethanolamine plasmalogens are similarly freed by lipase and diesterases and reintegrated by lysoplasmalogenases, while lipase and diesterase activity also can lyse the fatty acids and lead groups of phospholipids including phosphatidylcholine and Phosphatidylethanolamine in particular as the leading phospholipids by content in cellular membranes.

Phosphatidylethanolamine is diminished in adipose dysregulation while phosphatidylcholine, presumably in unenriched cdp – choline pathway fraction, is upregulated in susceptibility to adipose dysregulation. Since glycerol and glycosyl moieties differ both only an oxygen molecule in the literature, the selective preference of PEMT for lightly glycosylated or unglycosylated participates on triage of glycerylphosphatidylethanolamine tower autophagy autophagosomes compared lightly glycosylated or unglycosylated phosphatidylethanolamine being preferred substrate in PEMT synthesis of enriched fraction phosphatidylcholine, resulting in methylation of methylene bridges molecules, resulting in removal of one of the two methylene bridges of phosphatidylethanolamine, but also allowing phosphatidylcholine to perform as a more stable membrane structure to trap eV- freed by oxidation of Hydride from NADH or other redox factors. This context explains the usefulness of phosphatidylethanolamine being typically presented on the inner leaflet of membranes where it's enhanced lead group range of motion allows current to be accessed by its methylene bridges, gathering the fluorescent 2 eV- emitted when hydride is freed during hydridic redox transactions. Including the exhibition of phosphatidylethanolamine in the inner leaflet of the inner mitochondrial membrane, revealed is the modality of capacitance, both in emitting of capacitance and gathering of capacitance, that contributes consciousness and cognitive function. Logically, the movement of hydride in metabolic processes, or current, such as in methyl group or hydride transfer, represents a structural movement current which is somewhat homologous to freeing of hydride as 2 eV- and fluorescent influence, particularly when considering the capture of current by methylene bridge complexes.

The three methylations of the nitrogen in phosphatidylethanolamine by PEMT effectively diminish lead group flexibility and transform current transfer characteristics of phosphatidylethanolamine to exhibit the hydride packed Nitrogen lead group Choline which is linked by one methylene bridge to the insulating ether linked fatty acids comprising enriched phosphatidylcholine.

The one methylene bridge of phosphatidylcholine compares to the two methylene bridges of phosphatidylethanolamine, while both of these molecules maintain the hydride packed oxonium in the unlinked oxygen of the phosphate group which links the methylene bridge to the fatty acid, glycerol or glycosyl tails. PEMT may prefer unglycosylated tails because it's processing my

require or prefer selective configuration of the fatty acids linked methylene bridge and phosphate group, particularly in the third methylation in which phosphatidylethanolamine is exited into the phosphatidylcholine fraction.

Energies are ubiquitously involved in how atoms and material are exhibited in multiplicity as structures. Correlatively, methylene bridges effect, affect, or change these energies involved in metabolism and structure.

Availability, control, management, and directing of methylene bridges, including methylene bridge cysteines, are foundational determinants of health status.

Importantly, it has been derived a most essential empirical observation, which is that eHcy may merely be a most obvious example of the multiplicity exhibited by methylene bridges which attach to and promote structural development and structural polymerization as well as which sequester current emitted from oxidation of Hydride or emitted current from carbocation rearrangements in molecules with hydridic character.

PEMT translates two methylene bridges protected within phosphatidylethanolamine between the Ethanolamine lead group and the oxonium exhibiting phosphate group, to exhibit only one methylene bridge while attaching three CH₃ molecules to the open locations upon the ethanolamine lead group to produce choline in place of ethanolamine. The potential of methylene bridges to attach to structures and polymerize is diminished as a result and the packing of hydride into ethanolamine counteracts the methylene bridges sequestration and counteracts the susceptibility of methylene bridges to being commandeered, allowing inner membrane phosphatidylethanolamine to capture current and PEMT to package ethanolamine lead groups by packing hydride into the lead group and attach ether linked fatty enriched fatty acids to the tails as insulation.

Clinical canonical methylene bridge cysteine $\mu\text{M/L}$ at 15 without or regardless of exhibition of symptoms, 10 with symptoms, otherwise above 6 or 7, but increasingly with levels further above 3.7, are thresholds for asymptomatic inpatient admittance, symptomatic inpatient admittance if not already admitted, therapeutic intervention on any setting, and focused monitoring without regard to admittance status, respectively. Correlatively, when any methylene bridge molecule is not encapsulated or education through methylation or not both methylated and adenylated/adenosylated, or when unencapsulated methylene bridges are not either stabilized, being recycled, being applied in beneficial biosynthetic virtual pipelines, or are not being deteriorated into nonmethylene bridge molecules by transsulfuration, proteolysis, autophagy, ubiquitylation, or otherwise, such methylene bridges may be commandeered by unbeneficial pathways such as fibronectin occupation of methylene cysteine bridges to increase free fibrin and deposit methylene bridge fibronectin complexes in tissue such as methylene bridge cysteine fibronectin complexes deposited into cardiac tissue to cause tissue remodeling. Including Ethyl molecules promote methylene bridge activity, particularly polymerization promotion, while methylation stabilizes methylene bridges.

Unmanaged methylene bridges may attach to structure, biologically active molecules, structure, promote polymerization, sequester current in these contexts, display signaling, disrupt hydridic

character and carbocation rearrangements to hydridic character, and since energies are involved in structural adhesions in much if not all nuances material if the universe, the essential presumptive nuances of physics, biology and biophysics may be destabilized by accumulated, unmanaged and inadequately available methylene bridges.

Ethanolamine, de novo as nutritionally obtained ethanolamine, but recycled in pathways that can result in glyceryl and glucosyl phosphatidylethanolamine excluded by PEMT on its substrate selection, thus, represents this important Duality of methylene used in defense of a space in which biology may flourish along with its ability to sequester current and useful biological factors which can be overly exhibited or commandeered by less than biologically beneficial conditions.

A review of the lengthy list of required effects of Hcy or eHcy, active in or required for most if not all manifestation of diminished health status, pervasively reveal patterns of methylene bridge dysregulation, causing methylene bridge to emerge as a new most empirical specific encompassing empirical parameter in health and behavior. Particularly because methylene bridges affect the solvation shell or hydration which guides intramolecular and intermolecular interactions, as well as determines hydrodynamic characteristics at least up to 20 angstroms from the molecular surface. Methylene bridge proactive management may replace much if interventional care in developed civilizations, allowing Care infrastructure to be sustained as is with inpatient, outpatient, Office, mobile or home nuances of care to enable vibrant industry to be sustained and grow with a correlated beneficent effect to health and behavior. This contrasts, clearly, delaying assay and care total methylene bridge mismanagement has been allowed to deteriorate physiology onto emergent or substantial pathology.

A priority is afforded to managing methylene bridges of phosphatidylethanolamine, their direction toward autophagy anchoring as glyceryl versions, their direction through exclusion from PEMT third methylation toward antihistamine function and recycling when glycosylated, as well as their preferred selection by PEMT when lightly glycosylated or unglycosylated. Ethanolamine attaches the fatty acids to cdp – ethanolamine using diacylglycerol or allocated acylglycerol as linkages while this catalytic interaction prefers sn-1,2 diradylglycerol as substrate, result in in major output as phosphatidylethanolamine and some fraction glycerophosphatidylchol7ine. Oxidative phosphorylation, cellular respiration Complex III enabling, essential phosphatidylserine decarboxylase translation of phosphatidylserine to phosphatidylethanolamine occurs at the inner mitochondrial membrane such that sn-1,2 diacylglycerol phosphatidylserine and sn-1,2 diacylglycerol are Selectively preferred as substrate by both phosphatidylserine decarboxylase 1 and phosphatidylserine decarboxylase 2.

These conclusions present how interconnected systems and incentives that promote information sharing and divulgence of information, may be among the most powerful developments among the Universes, particularly if excluding the first instance in which organisms exhibited the inclination to beneficently care for one another. Such inclination, in objective opinion, changed everything that has since emerged and has changed everything that may ever be.

Methylene bridges are practically CH₃ methyl groups without the third Hydrogen which is considered to be hydride. Methylene bridges are susceptible to strong withdrawers of electrons

and are affected in such regard strongly enough to cause deprotonation, such that assimilation of electrons from flowing 7.2 current, intramolecular current, hydride in intramolecular locations or hydride in unattached structures can be withdrawn to become localized to the electron withdrawing complexes, even when this results in deprotonation, even when this results in a carbocation arrangement or shift in hydridic character, as well as when this results in a withdrawing of an electron across space between unattached carbocation participants.

5,10 methylene tetrahydrofolate is processed by the enzyme MTHFR to produce 5 methylene tetrahydrofolate which methionine synthase uses to produce methionine. which contributes Methylene bridges, Methylene Spacers, Methanediyl group, or Methano factors, all used to indicate methylene bridges, exhibit CH₂ with individual linkages of the carbon to other factors, such that when located between strong electron withdrawing groups such as Nitro NO₂ linked to nitric oxide biological benefit, Carbon double linked to Oxygen as Carbonyl, and nitril composed of an axial group linked to a Carbon that is triple linked to a nitrogen, exposure to strong bases can result in highly biosynthetic products such as enclaves and carnations, explaining why 7.2 to 7.6 alkaline environmental pH is linked to homeostasis as well as explaining how methylene bridges must be encapsulated or counteracted in the homeostasis alkaline environment.

Because methylene bridges are homologous to CH₃ without the third Hydrogen which completes the electron configuration for packed Hydride in which triplets of Hydrogen are known to attach to structures in triplets at one dimensional valley structures in which one of the hydrides is structurally dissociated. This dissociation across spanning across obscuring structures and unidimensional structural valleys are obvious similarities to both carbocation or hydride shift including methyl shift and other carbocation as well as methane bridges or methylene spacers which participate in carbocation.

Conditions of structure, energetics or metabolism, including those otherwise involving migration of. circulation of, or circulating monocytes, from a review of the literature, clearly seem to pervasively involve or are empirically differentially characterized by attrition, upregulation, diversion, inadequacy, impedance or increased volume of substrate flow through the CDP - ethanolamine pathway to PEMT and the Lands cycle.

Ethanolamine exhibits two methylene bridges, to which ethanolamine kinase activity contributes a phosphate group to produce phosphoethanolamine, followed by ethanolamine phosphate citidylyltransferase attachment or polymerization of the existing phosphate group in phosphoethanolamine using another phosphate group, a hydroxyl attached pentameter and a hydroxyl linked hexameter. Ethanolamine phosphotransferase then attaches glycerol molecules to the methylene bridges through an oxygen intermediary. A review of lipid chemistry structural phase progression literature, research and application, clearly links the characteristics of these processes not only with phosphatidylethanolamine movement of current or energy from the inner leaflet of membranes to outer leaflet of membranes such as when PEMT packs Hydride as CH₃ around or into a strong electron withdrawing biosynthetic nitril adjacent to a methylene bridge such as enriched phosphatidylcholine, but also presented are the microstructural, superstructure, phase development progression that differentiates organism structure, function and energetics.

The one hydrogen difference between glycerol and glycol factors suggest that PEMT prefers the extra hydrogen of glycerol to spread the energetics of hydride across the molecule including the fatty acid that is attached to the one methylene bridge, presumptively explaining why phospholipids are characterized by sn-1 fatty acid species and sn-2 fatty acid species because these determine nonresolution/resolution phase interactivity, bending, folding, insulation, shape, twist and writhe of areas between phospholipids, of membranes and plasticity characteristics in general.

Glycosylated tails are less preferred than glycerol tails in PEMT selection of its substrate fraction of available phosphatidylethanolamine while supply of phosphatidylethanolamine by serine decarboxylase and ethanolamine phosphotransferase are presented by the literature as scrutinizing only the sn-1 loci for diradyl glycerol during production of phosphatidylethanolamine as substrate for PEMT. The cdp – choline pathway uses already existing choline processed in the same pathway transactions as ethanolamine, to result in phosphatidylcholine. with diminished focus on enriched diversity of fatty acids. Phosphatidylcholine can be recycled generally through phosphatidylserine decarboxylase, including direction toward trypsin synthesis by MDR2, lipase activity, diesterase activity or direction toward ceramide and toward the sphingolipid signaling pathways which should be managed because are cellular existential challenge response pathways linked to diminished health status response. Sphingolipid signaling pathways should be managed because these can emerge as causal factors of diminished health status if exhibited for extended duration.

Methylene bridge participation has probably eluded requisite centrality because of the Duality of methylene bridges as active structural polymerization promoters and passive susceptibility to strong electron drawing factors, clearly leading analysts toward the electron drawing groups in analytic research to obscure methylene bridges while also being obscured in the effect of methylene bridges to spatial energetics as well obscuring effect to structural energetics or metabolism. The affection of structure to space, factors and monocytes circulating in physiology, as well as the affection by circulating monocytes, enzymes such as carbocated methionine of structure and other circulating material, does not seem to be intuitively represented in experimentation, research, Health, Nutrition, diagnostics, development, therapeutics development, although at interactivity levels, S.O.A.P. objective assessment processes seem to represent homologues hydridic interactivity.

Ethanolamine, phosphoethanolamine, Citidylethanolamine, diradyl or glycerol phosphatidylethanolamine, diradyl or glycerol phosphatidylmonomethylethanolamine, diradyl or glycerol phosphatidylmethylethanolamine, (palmitate first fatty acid in fatty acid beta oxidation, oleoylate, extended length omega-6 arachidonic acid, Docosaheptaenoic acid, omega-3, ether linked, diverse fatty acid) enriched glycerol phosphatidylcholine followed nonresolution/resolution phase lipase/diesterase freeing of fatty acids which are applied in immunology or shuffled while being reintegrated into phospholipids such as enhanced diversity fatty acid phospholipids and enhanced diversity phosphatidylcholine by

LPCAT/MBOAT/Lysoplasmalogenase catalysis, provides a central perspective of ethanolamine shuttling of methylene bridges.

Although the genetic conditions can have enhanced sequelae, these and other extended differential characteristics pervasively involved methylene bridge and methylene bridge cysteine escape from transsulfuration, recycling, proteolysis, serine proteolysis, tissue plasminogen activator activity, autophagy, ubiquitylation or other excretion and recycling pathways. AP1 which diminishes the cdp-choline pathway at CTP--choline citidylyltransferase while both diminishing PEMT and diminishing telomerase replacement of telomeres during each mitotic cellular cycle, compared to SP1 performance of these same changes although SP1 upregulates telomerase instead of diminishing telomerase, provides of differentiating influence in the developmental sequelae following pipelining of ethanolamine to diverse shuffled phosphatidylcholine. The small amount of cdp-choline pathway substrates produced by cdp-ethanolamine pathway enzymes and the small amount of cdp-ethanolamine pathway substrates produced by the cdp-choline pathway enzymes are more than interesting, particularly because through phosphatidylcholine conversion to phosphatidylserine, phosphatidylserine conversion to phosphatidylethanolamine and phosphatidylcholine direction through ceramide, sphingolipid synthesis, and then to hexadecenal and ethanolamine phosphate, as well as PEMT de novo synthesis of choline as enriched phosphatidylcholine, the CDP-Ethanolamine pathway and the CDP-Choline pathway pipeline substrate to one another.

These revealing observations directed by perspectives of methylene physiological effects open the field of convergent contexts for nutrition medicine, research, diagnostics, and proactive health assurance at the foundational aspects of material of the universe, surmounting the divide between physics and biophysics in biomedical discovery.

Intriguing is the way in which methylene bridge multiplicity enables or participates in which any defined space can have its constituent material behave as other material such as atoms of one nature perform as other atom level configurations. Methylene bridges have an omitted third Hydrogen, relatively, hydride, such that electron withdrawing groups attaching to methylene bridges cause a sequestration of 2 eV- or cause sequestration of current, either in through space jumps, electron tunneling across atom or biological structure, constitutively from freed fluorescent hydridic energy, or by causing a physiological pathway or pipeline to be invoked that culminates in delivery of current, electrons as 2 eV-, four essential energy immersion such as nitril groups packed with methyl groups which have hydride. Correlatively, methylene bridge as order takers and delivery invokes of hydride may result in synthesis or delivery of ATP or Pyruvate. Inherently, hydride negative polarity or alkalinity promotes natural gradient in the H⁺ prevalent solution, + environment or unpolarized environment, while its order taking and delivery of current or energy molecules as well as fluorescent enables physiological activity to occur against natural gradients, allowing organism to increasingly use conscious priorities on shaping of physiological outcomes and behavior. Methylene bridges exist in space and although essential biological factors are also found in space suggesting that there integral processing requires a spontaneous event. Order taking by the methylene bridge and its sequestration of current and interaction with the solvation or hydride shell is more than adequate cause spontaneous or more accurately, designed programmatic integration of these foundational

components of biology. Thus, in any defined space the components can be galvanized to perform actions enabling or sustaining biology, at least one modality in such regard is the sequestration hydridic character or current by methylene enabled changes.

Polyunsaturated fatty acids Docosahexaenoic acid and Eicosapentaenoic acid exhibit methylene bridges and phosphorylate delta carbons of tryptophan 448 and 553 of PDK1 which along with AKT phosphorylation at tryptophan 424 by these PUFA fatty acids, results in PDK1 translocation to the cytoplasmic membrane, depletion of the Pyruvate Dehydrogenase downregulator known as PDK1, enhances glucose depletion correlative to acylation of AKT and acylation of PDK1, while also enhancing insulin resistance because the physiological effect of insulin receptor downregulation by P53 is circumvented by these conditions to enhance glucose removal and processing. A study observes that polyunsaturated fatty acid, PUFAs, counteract the potential for upregulation of glycolysis when glycolysis should typically be downregulated responsively to diminished PEMT activity and responsively to upregulated P53. This potential increase in glycolysis amid PEMT downregulation and amid P53 upregulation is a canonical integral factor in diminished health status, and is counteracted by Docosahexaenoic acid and Eicosapentaenoic acid, in a way that results in beneficial tissue remodeling which. DHA and EPA enabled tissue remodeling, in this regard, follows reintroduction of diminished glycolysis that is coupled with reintroduction of Krebs Cycle upregulation compared to glycolysis.

DHA and EPA PUFA methylene bridge associated reprogramming of energy metabolism destabilizes the “warburg effect” in which upregulation of glycolysis occurs in detrimental contexts, with particular including of glycolysis upregulation occurring amid PEMT downregulation or P53 upregulation, and presents how methylene bridges perform or enable enzyme activity that can be empirically described as current flow, flow of ambient current as well as molecules, metabolites and structural activity that constitutes migration of electrons or flow current. Any way that any organism, function, device, machine, building, activity, function, Pipeline, or wire in nature or civilization uses to obtain or sequester, logistically supply, deliver, elute, or transmit energy, power or current can reasonably be represented by methylene bridge enablement in physiology.

The “warburg effect” can be simply reprinted as an increase in glycolysis without the assistance of PEMT packing of hydride into biosynthetic electron withdrawing nitril lead groups of newly produced, unglycosylated or lightly glycosylated, glycerol, ether linked, Omega-3, DHA, EPA or otherwise enriched phosphatidylethanolamine metabolites including likewise enriched PMME, PDME and phosphatidylcholine. Phospholipase and diesterase are increased in detrimental conditions including when PEMT is downregulated, freeing choline, other lead groups such as ethanolamine, phosphatides, and fatty acid from cellular membranes along freeing Ca^{2+} encircling lead groups of phospholipids to sustain Ca^{2+} reliant versions of lipases and diesterases, although versions of these include those which function independently of Ca^{2+} . These can result in release of unencapsulated methylene bridges, although phospholipase or phosphodiesterase activity can generally be correlated with increase in methylene bridge cysteines. Diminished PEMT results in diminished migration of phosphatidylethanolamine from the inner leaflet of membranes to the outer leaflet or outer membrane as phosphatidylmonomethylethanolamine then phosphatidyl dimethylethanolamine, then

phosphatidylcholine, resulting also in diminished hydride packing at the Plasma membrane, diminished support of hydridic field attenuation into the extracellular space which decreases support of the near 7.2 to 7.6 background pH and diminishing inherent enablement of polarity gradients, solvation, solvation shell, intramolecular dynamics. intermolecular dynamics, and water dynamics up to 20 angstrom or more from molecular surfaces. The result of impaired PEMT packing of hydride, in this regard, may be a foundational destabilization of existential nuances of the foundation biological compartment, including upregulation of the cdp- choline pathway to counteract massive programmed deterioration of cellular compartments, increase in proteolysis over autophagy, increase in ceramide from diminished directing of phosphatidylcholine toward phosphatidylethanolamine resultant of PEMT inhibition that produces accumulation of phosphatidylethanolamine, increase in sphingosine 1 phosphate from ceramide because tissue stability requires that the cellular deterioration signal ceramide be redirected toward S1P massive pathways of survival signaling, all of which are lessened in availability by PEMT function or PEMT metabolites.

G protein coupled receptors, S1P receptors, including GSK3B, PDK, cellular survival Bcl2, and proteolytic enhancing BAG1 which links chaperone complexes to the 26s proteasome using ubiquitylation pathway signal attachments that are diverse and can be commandeered by detrimental conditions or axial pathways, all are S1P effected. BAG1 compares to BAG3 in that BAG3 invokes, preferentially, autophagy, which although endosomes can be used by microbes to escape the toxic plasma membrane interstitial space, is nonetheless vacuous to intracellular substrates moved into autophagosomes resulting in clearing of diverse material from the intracellular environment.

Excess unencapsulated methylene bridges, impaired PEMT encapsulation of methylation bridges, and commandeered these by detrimental conditions or factors are integral to spatial and interactive nuances of dismissed health statuses which become obscured by unintuitive characteristics of quantum, physics, biophysics which can escape ascertainment because methylene bridges can be passively or actively applied in the physiological context. The click information suggest that since diversity in hexose sugars circumvented GLUT 1, GLUT 3, GLUT 4 and glucose- 6 -phosphate dehydrogenase downregulation by P53 by circumventing impedance to the hexose glucose being endocytosed and shuttled into glycolysis. Particular using other hexoses and other hexose transporters to supply the pentose phosphate pathway with substrate and potentiate controversial supply of the latter aspects of glycolysis near the Krebs Cycle with Ribulose through Rubisco glycerol carboxylation and supply of the Krebs Cycle with glycolate produced through Rubisco glycosyl oxygenation.

The hexose monophosphate or pentose phosphate supplies pentose sugars uses in structure and polymerization of DNA and RNA, while monophosphate integration can divert pentoses away from Nucleotide synthesis, some reduction of pentoses result in a monophosphate reduction that essentially results in a Nucleotide or nucleotide precursor. Thymidine kinase produces thymidine monophosphate from atp and deoxythymidine and it polymerizes thymidine into nucleotide sequencing in a way that results in integration of thymidine monophosphate into genomic polymers, constituting an essential Nucleotide synthesis mechanism use in Pharmacology and able to be modulated to affect cellular cycle by causing Nucleotide imbalance and inadequacy.

The junctures at which PEMT inhibition affects glycolysis such as at GLUT endocytosis of the hexose glucose, glucose - 6 - phosphate dehydrogenase processing of glucose – 6 – phosphate, insulin receptor inhibition, or other, affect availability of glucose into the hexose monophosphate shunt also while diverse other hexoses may be able to be circumvent these to assist in enabling continued supply of glycerol factors, glycolate, and pentose sugars, as well as nadph. The literature does not delineate if the utility of P53 in imposing these regulatory influences when PEMT is diminished includes pentose phosphate pathway as happenstance, if the such inclusion of the pentose phosphate pathway is intended to exclude the specific hexose glucose from both glycolysis and hexose monophosphate pathway processing, although the analysis here clearly produces a Referential context in which glycolytic activity uninhibited by P53 causes deterioration of cellular structural and deteriorates esoteric and unintuitive aspects of biological systems.

A review of the structure of trimethylamine reveals that it accumulates in less than beneficial digestive pathway microflora proliferation, transiting the leaky gut typically resultant of the alpha relaxation of tight junction proteins of digestive enzyme, such that in hepatic tissue its one oxygen among the three methyl groups attached to its cationic nitrogen becomes reduced by flavin monooxygenase to produce a negatively polarized exposed oxonium, resulting in an unusually accessible juncture that fills the canonical methylene bridge omitted hydride. The commandeered methylene bridge can rapidly include tmao, explaining why tmao has a priority in being prevented in proactive and interventional care, and explaining why tmao is the among the most indicative biomarkers of susceptibility to sudden adverse health events, sudden adverse behavior, perioperative complications, diminished outcomes linked to diminished carotid plasticity, and other diminished outcomes. Interestingly, Areas of physiology near hepatic processing of tma into tmao, are the only areas, wet or splanchnic system of organs, in which proliferation conditions occur without irrefutable dismissed levels of PEMT activity. The effect of tmao, thus, may include the increased priority ascertaining PEMT2 impairment instead of aggregate PEMT2 impairment, tma, tmao, and the different metabolic methylene bridge cysteine compartments as s adenosyl, thiolactone, 'eic' acid version, and constitutive methylene bridge cysteine.

Active hexose correlated compound's name suggests that it activates the hexose monophosphate shunt, although the data suggests AHCC may also be an inhibitor of choline kinase alpha and may affect other metabolic enzymes. These suggest chemical energy may be dispensable in the 29 to 32 molecules of ATP exhibited when oxidative phosphorylation electron transport, glycolysis and Krebs cycle are all fully supplying products and substrate to one another except when PEMT is fully functional to move this nearer to 29 and 32, while the 6 molecules of ATP generated during P53 downregulation of glycolytic pathways resultant of diminished PEMT function prevents energy metabolism from excessively fracking or mining hydride packed into phosphatidylcholine without replenishment of enriched phosphatidylcholine on particular.

The linkage of nitril packed Hydride in membrane phosphatidylcholine, being fired lipase and diesterase for access in nad⁺/nadh and nadp⁺/nadph redox transactions such as the electron transport pathway freeing of hydride from nadh to emit 2 eV⁻ with about 58 percent as fluorescent energy loadbalanced across each phase of oxidative phosphorylation electron

transport and with about 42 percent integrated into the oxonium exhibited between the phosphate groups of ATP, Product of oxidative phosphorylation also known as cellular respiration, as well as entry of ATP into metabolism in Diverse contexts, including its integration into the glucose – 6 – phosphate dehydrogenase processing of glucose – 6 – phosphate to support translation of the hexose glucose into the hexose monophosphate shunt or into glycolytic synthesis of Pyruvate followed by either NADH enabled translation of pyruvate into lactate, the NAD⁺ and CoA enablement of Pyruvate translation into Acetyl – COA which can be shuttled by oxaloacetate into enabled shuttling of Pyruvate into the Krebs Cycle as Citrate and CoA. CO₂ is supplied toward fatty acid synthesis during Acetyl-CoA production, Acetyl - CoA can be directed toward Acetyl - choline storage if excess choline. Alanine, phosphoenolpyruvate, oxaloacetate, and acetaldehyde each are major pathways of pyruvate processing.

These nonintuitive nuances of hydridic migration are simpler to understand if free current, flow of current throw structure, movement of molecules, and changes biological structure are considered as aspects of current. Thus, glycolytic upregulation without replenishment causes a shift in the preemptive spatial, fluidic, structural, and current aspects of physiology that capture and apply the hydridic field in concerted way known as cellular physiology.

Prolonged dysregulation toward assured management of methylene bridge dynamics can result in impairment of PEMT1, PEMT2, or PEMT3 function, particularly including PEMT2 which emerges near conclusion of gestational status as a regulator of development, growth, and as regulator of the affectation of mitochondrial potential, plasticity, and control of developmental programs and cellular developmental programs. PEMT2 level of impairment is typically strongly correlate level of condition impairment and outcomes.

EPA and DHA exhibit fatty acid Configuration that resemble connected V or connect W letters, as well as resemble the keys of a piano with darker keys as carbons. Cis linkages between hydrocarbons in fatty acid extents invert the V to cause a bend. Compared to Trans linkages which produce linear, but flexible, extents of hydrocarbons, EPA and DHA exhibit two or more double carbon linkages in their fatty acid extents with a methylene bridge between these double adhered carbons, known as a divinyl methylene pattern or an interrupted methylene bridge pattern. The essential omega-6 and omega-3 fatty acids each exhibit this divinylmethane or methylene-interrupted pattern.

Divinylmethane patterns results in a interrupted methylene, as in EPA and DHA, at the sn-1 position of phospholipids, interacting with the methylene bridge in the sn-1 linkage to oxygen, the oxonium exhibiting phosphate group and the lead group to which these are attached such as the hydride packed lead group Choline or the unpacked strong electron withdrawing nitrile Ethanolamine. The literature does not openly express the obvious, which is that the Trans extents of fatty acids can typically exhibit characteristics of methylene bridges, suggesting their integral participation in biosynthesis and presenting simpler examples of how hydridic character and polarity are distributed across large aspects of biologically active molecules.

Regardless, the conceptual nuance of biosynthesis thus integrates conceptual nuances of creative forces of the universe and the fulfillment systems which are responsive to best fit, utility and satisfaction or fulfillment processes that satisfy creative influences.

An increase in the pentose phosphate pathway or increase in the hexose monophosphate shunt would be linked to increase in glycerol synthesis or glycolate synthesis or both, such that when this produces upregulated glycolate then the PEMT pathway selection of glycerol phosphatidylethanolamine may be diminished. Nucleotide synthesis is upregulated with hexose monophosphate pathway upregulation, being enhanced by general ribulose activity linked to 60 percent increase in nadph synthesis during hexose monophosphate activity, but reasonably link to increased glycosyl fraction of the hexose monophosphate shunt going to the biosynthetic Krebs cycle compared to shunting of glycerol factors into glycolysis near the Krebs Cycle interface with glycolysis. The glycerol selectivity by ethanolamine phosphotransferase and PEMT suggest glycosylated phospholipid tail upregulation diminishes these enzymic factors in favor of a de facto increase in the cdp-ethanolamine pathway, explaining why the cdp-choline, in some organisms, is known as the nucleotide biosynthesis pathway.

Imbalances or inadequacy, correlative diminished glycolysis and dismissed hexose monophosphate shunt catalysis, thus, emerge when PEMT is diminished, suggesting that Replication and its fraction of requisite replication competent nucleotides are diminished by PEMT to prevent Replication in conditions where PEMT is diminished used in function. However, DNA repair occurs in more than 1 million instances each day within each cellular entity, such that downregulation of glucose shuttling through glucose – 6 – phosphate dehydrogenase becomes a genomic Replication inhibitor and invite genomic repair, unless PEMT resumes its activity. P53 is repressed as in the “warburg effect”, or diversity in hexoses is exhibited to circumvent P53 imposed downregulation of GLUT. Glycolysis and pentose phosphate pathway. Arellano study observes that nucleotide imbalance or inadequacy invokes replication nonresolution cytokines such as ATR, differently from other known cytokines, to enable cellular cycle progression during nucleotide inadequacy and allow cellular entities to escape excessive growth as hypertrophy or differentiation during nucleotide inadequacy. Representing small cellular compared to large cellular difference in cellular phenotype. It is known that an ankyrin repeats repress P53, carbohydrate circumvent P53 through ChREBP activity, phospholipase and diesterase free phospholipid and Choline from cellular membranes to mimic available choline to surmount P53 downregulation of nervous pathways, and high powered phosphorylation such as cases kinase, T-Lymphocyte activation of Ligands, as well as immunological response, all can upregulate pathways repressed by PEMT including expanding the group of specific cellular entities allowed through P53 to P21, to P27 and pRb phosphorylated status as a Regulator in this regard, as gated pathways applying coordinated cyclin function to complete the cellular cycle. Thymidylate performs an essential role in nucleotide adequacy while nucleotide adequacy likewise is essential to cellular entities escaping G phase and S phase to progress to subsequent mitotic or meiotic phases.

ATR escapes cellular entities from the beneficial effects of nucleotide inadequacy and the detrimental effects of cellular hypertrophy, which may be circumstantial beneficial, although, like cytokine increases over extended periods otherwise, can enable exhibition of diminished health status and risk if exhibited for extended duration. PEMT, thus, seems to expect diverse hexoses to be available during its diminished function enabling substrate to be shunted into glycolysis as well as allowing Rubisco supply of glycerol substrate to be shunted into glycolysis near the Krebs Cycle and enabling glycolate substrate to be inserted into the Krebs Cycle.

PEMT might have no specific regard for D chiral Glucose except that when Glucose - 6 - Phosphate Dehydrogenase produces glucono lactone from Glucose phosphate nadp⁺ is used as a cofactor and becomes nadph which decreases the essential increased levels of nadp⁺ when nadp⁺ is compared to nadph, a disparity that is a foundational enabler of activity, gradients, transactions and flow of hydridic current in physiology and on biology generally. P53 seems to prevent both production of nadp⁺ and Glucose phosphate during gluconeogenesis as well as prevents production of glucono lactone and nadph because PEMT diminished function impairs the flow of hydridic current through structure as a priority. Structure is essential in trapping current and controlled directing of current, enabling cellular capacitance and potentials, post synaptic neuron polarization baselines, hydridic effect, and galvanizing of concerted tissue capacitance linked to consciousness and cognition. The spooky spatial aspects of these influences are another dimension of why trapping and recycling current is a priority, such that shuttling current through structure enables the foundational biological compartment to exist and function in ways that are increasingly both spookily biological and strangely biological.

The literature is in consensus observation that aggregate methylene bridge cysteine diminishes PENT, although vague in clear presentation of if s adenosyl methylene bridges only, instead both s adenosyl and s adenosyl bereft methylene, are mechanistic downregulators of PEMT. However, s – adeonsyl methylene bridge cysteine is a downregulator of PEMT and diminished performance of translation of s – adenosyl methylene bridge cysteine into methylene bridge cysteine by the hydrolase SAH decreases cellular division and causes hypomethylation of Genome. What is clear is that is that SAHH is redox or nad⁺/nadh ratio regulated, and the um/L linked to detrimental changes is 0.012 for s adenosyl methylene bridge cysteine compared to 6 or 7 um/L for methylene bridge cysteine, suggesting a potency variation, although there are pathways for specific detox of each of these varieties of methylene bridges and there is likely attenuation between these methylene bridge fractions in diverse metabolic conditions.

The activation potential for SAHH has been solved, in a study, as NAD⁺ increased comparatively to nadh, suggesting it is inherently and strongly potentiated toward translating s-adenosyl methylene bridge cysteines by release of the adenosyl moiety, producing nadh from nad⁺. However, the same study observes that SAHH then proceeds to synthesized adenosine which is a downregulator of choline kinase alpha attachment of ATP to Fee choline at the incipient phase of the cdp-choline pathway, resulting interestingly, in production of nad⁺ from nadh. Thus, s- adenosyl methylene bridge cysteine is trapped by diminished nad⁺ and produced when nadh levels are increased, while P53 reinforces the glycolytic translation of glucose into pyruvate that already potentially occurs when nad⁺ is diminished in availability from its typically strong prevalence over nadh. These are clearly two among other mechanisms that manage structural molecular to phases of energy or flow of current. Pathways of methylene cysteine bridge processing, deterioration, or recycling which do not produce adenosine have an increased potential of upregulating the cdp-choline pathway because it relieves deterioration of PEMT diminished packing of Hydride by using already produce choline lead groups packed with hydride and CH₃ to produced phosphatidylcholine using non newly produced choline lead groups. Phosphatidylcholine and phospholipid structure is produced from recycled structure when PEMT is not adequately synthesized choline lead groups. Particularly, redirecting current from escape, depletion and attenuation toward, instead, reintegration into membranes and

structure. The priority seems to be structural translation, sustainment and cycling if current, particularly hydridic aether.

Redirecting of s-adenosyl methylene bridge cysteine toward thioether methyl transferase results in production s adenosyl methionine while each catalytic action by thio ether methyl transferase results in polymerization selenium, tellurium. sulphonium, other amine, or other factors, while trimethylsulphonium is then used as a substrate for thetin methylene bridge cysteine transpherase production of the desquamation depolymerization factor used pervasively in therapeutics production in the 1900s and 1900s, while dimethyl thetin performance as an alternate for trimethylsulphonium has been presented in the literature since 1878, methylene bridge cysteine has been presented in the literature since 1810, and lecithin as mixed choline and phosphatidylcholine was characterized in the literature in the middle to later aspects of the 1700s.

Some of the literature limits thioether s methyltransferase to bidirectional translation of dimethylsulfide and s-adenosyl methylene bridge cysteine into trimethylsulphonium and s-adenosyl methionine. Trimethylsulphonium tetrahydrofolate produces, bidirectionally from trimethylsulphonium and tetrahydrofolate, the products dimethylsulfide and 5-methylenetetrahydrofolate substrate for one carbon MTFHR/methionine synthase /methionine synthetase pathway processing if methylene bridge cysteines into methionine and s-adenosyl methionine.

Methylene bridge Management pathways and factors, such as methylthioglycolic acid, elute or derive molecules that affect methylene bridge polymerization, energy sequestration, and ability to be commandeered to change current and structure as well as affect how accumulation of methylene bridges potentiate typical and atypical development, differentiation and bending of spooky aspects of biology toward anomaly of seemingly idiopathic origin. Derivatization occurs in this regard in almost any environment in the universe because methylene bridge factors and foundational aspects of biology with which it interacts are found in the biome and in space, exhibiting how these molecules are active caustic pathways that sequester a space in the biome for biological systems, transfer useful products from abiotic phase into biotic phases and increasingly derivatives factors in the biotic phase in service to physiology and in service to the foundational biological compartment which are cellular entities.

The human inclination to derivatize important contexts to empiricism implores what may have been futile endeavor, in the more than two centuries since methylene bridge cysteine was first characterized, to simply explain the methylene bridge multiplicity. The methylene bridge sequestration by biosynthetic strong electron withdrawing groups sequester hydride and galvanized molecules, structure, metabolism and development of biological systems as a result. Much of human activity and behavior seems to be likewise sequestered to such priority or shaped in ways that indicative of such priority. However, the application of methylene by biosynthetic strong electron withdrawers, through polymerization potential, transforms current into structure, explaining why and how mitochondria, sometimes hundreds in an individual cellular entity, effect and regulate developmental programs, particular through PEMT and particularly through

mitochondrial PEMT2 activity which typically emerges near the transition from gestational phase.

ATR be a therapeutic locus of susceptibility in diminished health status as well as may be a locus of support in supporting resumption or stabilization of homeostasis.

Systems modeling perspectives observe correlation between hypomethylation and s-adenosyl methylene bridge accumulation, particularly linked to diminished unimpeded flow of methyl resources and, particularly, with diminished PEMT throughput. Increased methyl group resources without methyl resource metabolic processing and increased cysteine bridge exhibition without metabolic processes at result in accumulation, aggregation and sedimentation, with methylene bridge accumulation potentially resulting in. Both, deposits without requirement of being integrated into complexes, but also potentiating integration into complexes that activate methylene bridges to transfer hydride for translation into structure polymerization activity. Slowing metabolism may cause methyl and cysteine bridge requirements to decrease, resultant in methylene bridge accumulation within junctures of metabolic pathways, particular areas of physiology, as structural polymerization, or as mechanisms enabling less beneficial process to commandeer such dysregulated methyl resources.

The literature, in some instances, describes methylene as a carbon atom with hydrogen adhesions at each extremity, while methylene bridging occurs when a methyl group described as CH₃, contrasting methyl groups presented as CH₃ elsewhere, is attached to methylene. The methylene bridging process results, then in sequential methylene molecules bridged together, resulting, also, in the sequential adhered methylene constituting fatty acids, particularly sn-1 fatty acids of phospholipids which can cis, trans and divinyl methylene bridges with two sequential double adhesions.

Methylene bridges are alkanes, the simplest of the carbon adhesions with single adhesions typically, promoting alkalinity, explaining some of the hydridic effect in which background pH is alkaline in the physiological environment, resulting in change to the environment encapsulating phospholipids, fatty acids, methylene bridges, and cellular membranes. Methylene is described as a colorless gas that integrates with atmospheric hydrogen to produce methane while methylene can be rapidly, also, oxidized into Carbon monoxide and water, although being soluble water. These characteristics confirm the aether characteristics of hydride because the two hydrogen atoms of methylene are linked logically to hydride in many statuses or versions in the environment, because the literature observes trios of hydride participating when hydride attaches to surfaces, because activation of methylene bridges sequesters electrons from hydride through metabolic, molecular, current or other vectors, and because methyl groups as exist and are known to attach to the leading edges of structural lattices to diminish or control expanding structure.

The hormones and glucocorticosteroids such as estradiol are interesting because the offset pentameter and offset hexameter are presented with the pentameter offset in the direction of the cardiac tissue offset with, also, the hexameter being offset in the direction of the hepatic organ offset, presenting the two uppermost organs offset from symmetry in correlation to hormone shared structure.

Because hormones exhibit aromatic resonant hexameters they interact with other molecules through space without being connected, carbocation's or hydridic character can also be shared across discontinuous structure, interesting observations can be presented.

Another analysis in the compendium of research linked to this analysis presented that the hydroxyl and chiral hydrogen of hormone including estradiol exhibit a pattern that integrates the uppermost cardiac pentameter into the adjacent hexameter, subsequently to a hexameter connected to the first hexameter, and then is interrupted by divinyl methylene spacers in the lower offset hexameter in in both directions the shared methylene bridge between the lower center hexameter and the offset lower hexameter. Hydroxide is exhibited linked to the carbon after the lower divinyl methylene spacer in the leftmost, lower most, offset hexameter. This configuration suggests that the hydrogen configuration is intended or performs weaving of the hydrogen field or hydridic potential into the lowermost offset hexameter while a methylene bridge linked to two divinyl methylene spacers, comprising one divinyl methylene sequence, performs as strong electron withdrawing circuit and the hydroxide in the leftmost. Lowermost hexameter primes this circuit. This configuration enables remote hormone methylene bridges to be activated integrally or remotely as well as enables hormone to exhibit remote carbocation, emit current, galvanize metabolism, polymerization and development, as well as participate in these physiological phenomena. Hormones weave in hydridic fields as control interfaces and PEMT performs as a satellite pin by integrating and stabilizing hydrogen and hydridic current by integrating CH₃ as Carbon, 2 hydrogen s and 1 hydride, all onto the ethanolamine lead group of phosphatidylethanolamine where the two methylene spacers become 1 methylene spacer that secures the satchel hydride, resulting in production choline as phosphatidylcholine which has three CH₃ moieties. The fatty acids in the sn-1 position are on the opposite extremity of the methylene spacer compared to the location of choline, performing along with other atoms as a stabilizing counterion or contributing stabilizing polarity, although the oxonium of the phosphate group may also contribute in such capacities.

Studies observe that amino acids perform as strong catalysts when exposed to the alkaline microenvironment, such as that promoted by methylene, methylene ridges, fatty acids and phospholipids. These gradients, thus, not only emerge in the physiological background, but emerge between the interacting molecules at the foundations of biology. Thus, metabolism seems to be self-starting, at least in this regard.

Methylene blue is a salt applied as a dye or colorant as well as is used as a therapy for methemoglobinemia which occurs when the typical trace amounts of the ferrous 2+ oxidation status of Iron in Haemoglobin/Hemoglobin become metabolized into ferric 3+ oxidation status version of Iron, which becomes clinically substantial by convention at 30% of aggregate haemoglobin/hemoglobin content either systemically or in the microenvironment. Oxygen therapy and Methylene Blue are used to counteract methemoglobinemia and counteracts the symptoms of impaired oxygen transport, blueish Green sweating, blueish/greenish/chocolate colored hematopoietic fluid/blood and excretory material, all linked to impaired metabolism, toxicity, or impaired access to essential blood gases, although these might include systemic organ destabilization syndromes. Discomfort in cerebellar area, nausea, impaired muscle coordination, cyanosis of bluish epidermal characteristics, seizures and arrhythmias are

correlated with methemoglobinemia, while other causal factors can include foods, chemicals, additives, particulate and other factors such as dapsone, benzocaine, nitrates, although the most indicative diagnostic is inadequate oxygen without responsiveness to oxygen therapy.

Hyperbaric Oxygen, vitamin C, exchange transfusion, oxygen therapy and methylene blue are typical therapies. Accompanying conditions can decrease the clinical symptom threshold to as low as 5% of aggregate Ferric 3+ Iron in hemoglobin compared to other oxidation status of Iron in hemoglobin, such that therapies such as trimethoprim, sulfonamides, dapsone, articaine, benzocaine, prilocaine and lidocaine, or particulate colorants such as anilines, rasburicase, chlorates, bromates, nitrites, umbellulone, and netoclopramide, particularly nitrates, may be primary or complicating factors in methemoglobinemia. Thiazine dye is among the heterocyclic compounds derivatized as pharmacological factors along with thiazolidinones in early therapeutics development linked to derivatization of methylthioglycolic acid at the beginning of the 1900s. These suggest that electron metabolism was integrally considered in therapeutics and methylene bridge management is confirmed as an essential, empirical indicator or factor in health, disease and therapy. Benzocaine used for gums and dental structural relief as well as lozenges for esophageal comfort are causally correlated with risk for methemoglobinemia.

Information. ISBN. (78-0-08-044705-6.

Information. United States Food and Drug Administration. Bulletin. April 7, 2001.

Information. United States Food and Drug Administration. Bulletin. May 23, 2018.

Nitrates in drinking water and therapeutics, thus, are substantial vectors of risk before or near 6 months after gestation because these are correlated with increases in risk or increased levels of Ferric 3+ Iron in hemoglobin.

The literature observes that Adult hemoglobin in early development is correlated with improved outcomes and lower risk for adverse biological outcomes, particularly lowering risk for sudden adverse health events. However, SCD and Beta-thalassemia are conditions that can be improved by reconstituted or preventing deterioration of prevalent gestational hemoglobin even as development progresses after conclusion of gestation. The literature observes that between 6 and 12 months after gestation, Adult Hemoglobin typically comes to constitute near 99 percent of hemoglobin with only 1 percent of hemoglobin being constituted of the gestational or second emerged gestational version known as hbf. hbf or gestational Hemoglobin exhibits 2 globin domains according to the literature, such that during first few weeks after conception the conception Hemoglobin can have about 20 times less stable tetra/dimer affinities than adult hemoglobin, presumably with gestational hemoglobin hbf being somewhere along this continuum while the dimerization/monomer stability in this same paradigm can be 500 times less stable for conception hemoglobin compared to adult hemoglobin with gestational hemoglobin being somewhere along such continuum. However, conception Hemoglobin, particularly if comprised of zeta subunits readily are exchanged for other subunits phenotypes, particularly having affinity for exchange of zeta subunits for beta subunits, resulting in stronger versions known as gestational or hbf or adult hba versions of hemoglobin. Dimer stability or structural affinity strength is observed in one study to flow from less stable to more stable as portland-2 zeta2/beta2, portland-1 zeta2/gamma2 equal to gower-1 zeta2/epsilon2, gower-2

alpha2/epsilon2, hbf1, hbf as alpha2/gamma2, hba2 as alpha2/delta2, thereby presenting a continuum of increasingly stable monomer to monomer interactions within the hemoglobin structure.

Omega-3 fatty acids EPA and DHA are both potent diminishing therapies to decrease discomfort or adverse health events resultant of SCD and similar diseases.

Although the subunits are presented in the literature are being expressed differently during phases of development, competition among subunits favoring stability seems to prioritize availability of more stable subunits and more stable hemoglobin phenotypes. Liganded hemoglobin can have 20 times more stable structure than unliganded hemoglobin, while liganded typically indicates CO integration or Oxygen integration and while about 20 to 25 percent of hemoglobin can typically be performing transport of CO metabolites or molecules. Oxygen integrated gestational hemoglobin hbf is presented as being 70 times less catalytically potentiated to abdicate dissociated dimers when compared to adult hemoglobin hba, thereby explaining gestational hemoglobin resistance to malaria toxicity along with explanation of gestational hemoglobin resistance to aggregation of SCD hemoglobin, particularly potentiated through the enhanced stability of the gamma subunit as observed is experimental hybridization. Acetylated gestational hemoglobin, which represents as much as between 20 and 10 percent of aggregate gestational hemoglobin produces, is presented in the literature as resulting in decreased stability of gestational hemoglobin. However, experimental data suggest that oxygen prefers integrated into deoxygenated hemoglobin subunits without preference between beta or alpha subunits, while organic phosphate level increase is correlated with preference for oxygen integration into the alpha subunit of deoxygenated hemoglobin while indicators of changed affinity suggest also that beta subunit variance in oxygen integration in the presence of inorganic phosphate seem to be the result of competitive subunit exchange dynamics. These explain changes to hemoglobin and oxygenation of hemoglobin when upregulation of phosphocholine and the cdp-choline occur, as well as potentially suggest differences in hemoglobin activity when increased levels of electron transport pathway production of ATP occur.

Hbf to hba shift occurs in reasonable correlation to the GABA switch in which GABA changes from being an excitatory modulator of neuronal polarity to become a downregulator or neuronal excitatory polarity upon stimulation by neurotransmitters. The GABA switch occurs in reasonable correlation of the NKCC1 to KCC2 switch in which KCC2 becomes increased compared to NKCC1. Inhibition of KCC2 experimentally prevents increase in KCC2.

Impoverished environments delays inversion of GABA signaling and presumably delays KCC2 expression. Selective therapeutic downregulation of NKCC1 rescues down syndrome symptoms, mimicking the same effect produced by phosphatidylcholine supplementation. Cl⁻ are substantially diminished after the NKCC1 to KCC2 transition. IGF-1, exhibited in breast milk, mimics environmental enrichment in causing earlier transition of the NKCC1 to KCC2, and, correlatively, the transition of GABA from being excitatory in its modulation of neuronal activation to becoming, instead, a downregulation modulator of neuronal level of activation. Gaba is instrumented for neurons during development, priming the environment for synapse developing through signal amplification, followed by downregulating such signals after the NKCC1 to KCC2 Gaba switch, presumably enable patterning of synapse and neurological

characteristics to environment during development compared to reliance upon the enhanced neuronal density and structure after development in a way that requires downregulation of signal sampling by neuronal infrastructure.

Information. *Ann Nutr Metabo*. Volume 65. Number 4. Pages 317 to 323. 2014.

Information. *PLoS ONE*. Volume 6. Number 8. Article e23020. 2011.

However, separation of early developing mammals from maternal hosts during early development delays the NKCC1 to KCC2 GABA switch. However, these phenomena are closely correlated with the inversion of the polarity direction exhibited by neurons which are stimulate by the neurotransmitter Cl⁻ and potentially other neurotransmitters also. The compendium of research linked to this analysis observes that breast feeding introduces diverse advantages, social outcomes improvement, duration of being, social function, levels of susceptibility to disease, potential for genetic conditions, conditioning, recall of conditioned association, blocking as an aspect of conditioning, memory, prevention of neuronal deterioration, and other effects, and previously this context was oversimplified by suggesting that the NKCC1 to KCC2 switch was delayed by breast feeding when, instead, either breast feeding delays the NKCC1 to KCC2 GABA switch or it is possible that choline adequacy is distinct mechanism that enables patterning by GABA by sustaining PEMT activity to enable Oxytocin expression to chaperone and invoke the NKCC1 to KCC2 GABA switch. A useful example includes the observation that PEMT function enables decreased P53 which enables more complete throughput through glycolysis, such that increased levels of Acetyl-CoA can be used to for choline acetyl transferase production of acetylcholine that performs as a neurotransmitter and storage factor for choline, while inhibition of PEMT diminishes both acetylcholine and Cl⁻.

Oxytocin, which is enabled by the function of PEMT, performs as an emotional, social, and psychosocial patterning and linkage factor that enables mammals and other organisms to establish social, emotional, reproductive, and other correlated linkages. Oxytocin Receptor coordinates the NKCC1, KCC2, GABA switch through Oxytocin Receptor which, when activated, upregulates KCC2, thereby promoting GABA excitatory modulation becoming inverted to become a downregulator of neurotransmitter signal intensity. These factors are all in reasonable correlation with hbf hemoglobin transition to hba hemoglobin. Certainly, choline adequacy, particularly from breast milk, and methyl group availability, as well as tight regulation of methylene cysteine bridge activity, all are linked to oxytocin upregulation, and NKCC1 to KCC2 GABA switch, in conditions of optimal development, all of which compares to choline inadequacy which may stimulate the same transitions for different reasons linked to deteriorated availability acetylcholine resultant of diminished availability of breast milk factors IGF-1, Choline, methyl groups and other factors.

Information. *Blood*. Volume 117. Number 15. Pages 3945 to 3953. 4th Month, 14th Day, 2011.

Information. *Cold Spring Harb Perspect Med*. Volume 3. Number 1. Article a011643. 1st month, 2013.

Information. *Pediatr Res*. Volume 76. Number 5. Pages 477 to 482. 11th Month, 2014.

Information. Arch Pediatr Adolesc Med. Volume 158. Number 4. Pages 366 to 371. 2004.

Information. "Cellular" Reports. Volume 15. Pages 96 to 103. 2016.

Information. Front Mol Neurosci. Volume 15. Article 893111. 7th month, 8th Day, 2022.

Information. Biochem Biophys Res Commun. Volume 493. Number 3. Pages 1243 to 1249. 11th Month, 25th Day, 2017.

Information. Neuron. Volume 15. Pages 1287 to 1298. 1995.

Information. IGF-1. Neuropharmacology. Volume 113. 2nd month, 29th Day, 2016.

Information. Chem. Volume 6. Number 8. Pages 2073 to 2096. 8th Month, 6th Day, 2020.

Information. Cold Spring Harb Perspect Med. Volume 3. Number 1. Article a011643. 1st month, 2013.

Information. "What is the Difference Between HbF and HbA Hemoglobin." Doctor.ndtv.com.

Each of the two subunits of hemoglobin exhibit two additional subunits which, themselves, exhibit a heme or iron moiety utilized to host integrated oxygen, nitric oxide, CO, etc. These explain why L-arginine is a substantial and remarkable therapy for an extensive array of disorders and diseases. Sulfohemoglobinemia and Carboxyhemoglobinemia are linked to reactions to therapy, toxicity and systemic anatomical dysfunction, while also Heinz anomalies can also arise in this context in correlation in different factors in the physiological environment. Thiolated or S-Nitrosothiols are powerful vasodilators similarly to L-arginine and L-citrulline.

Information. Proc Natl Acad Sci U S A. Volume 75. Number 11. Pages 5462 to 5465. November, 1978.

Information. Protein Sci. Volume 16. Number 8. Pages 1641 to 58. 8th Month, 2007.

Information. ISBN 978-3-030-41768-0.

The link between hemoglobin F and SCD, beta-thalassemia, other similar disorders is very interesting because a systems view reveals that although increased level of gestational hemoglobin may be therapeutic, the context of diminishing expression of gestational hemoglobin is canonically a decrease in the number of cellular entities or cellular phenotypes that continue to express hemoglobin F or hbf. Thus, an estimated 7 percent or less of erythrocytes expressing hemoglobin F is complicated by diminished expression of hemoglobin in these versions of cellular entities. Studies observe correlations between the number of cellular entities expression hemoglobin F and the levels of systemic hemoglobin F. Hydroxyurea and Erythropoietic therapy together have substantial ability to stabilize diseases such as SCD.

Genetic disease should become obsolete with full implementation of CRISPR gene editing. However, genetic assay occurring before such implementation should include understanding what the substrate and cofactors are for any impaired enzyme and understanding of what the products are for such an impaired enzyme along with supplementation of either products or both products and substrates. Recombinant versions of such impaired enzymes should also be

available, while the industry should be rapidly moving to provide all of these possible solutions for most, if not all, impaired enzymes and deficiencies.

Information. N Engl J Med. Volume 328. Number 2. Pages 73 to 80. January, 1993.

Information. Blood. Volume 46. Number 5. Pages 671 to 682. November, 1975.

The P50 or partial pressure at which hemoglobin F is 50 percent oxygenated is about 19 mmHg. The P50 of hemoglobin A is about 26.9 mmHG. Hemoglobin F, thus, is more easily, more completely and more rapidly integrated with Oxygen compared to Hemoglobin A.

Information. ISBN 978-0-323-39006-4.

Thiamin pyrophosphate is remarkably interesting because it presents how patterns of atoms in a molecule can comprise a field that traverses molecular structure, particularly when these atoms are indicative of strong electron withdrawing groups, and particularly when methylene bridges and hydridic character effects promote signing and packing of current within the molecular structure. Thiamin pyrophosphate exhibits a methyl group CH₃ joined to the upper left most corner of the leftmost cyclic hexameter hydrocarbon ring where the carbon linked to CH₃ is connected to right or clockwise toward an apical Nitrogen by a single adhesion Nitrogen that is has a double adhesion to a carbon shared with another hexameter along a shared wall comprised by another clockwise single adhesion to carbon. Followed by separation of the hexameters in clockwise direction through a double carbon to carbon adhesion, followed, then, by a clockwise single carbon to nitrogen adhesion, then concluding with double adhesion between this nitrogen and the carbon to which the methyl group is linked. It is clear that the Nitrogens are asymmetric to the hexameter but somewhat symmetric to the methyl group with double adhesion in the clockwise direction for each nitrogen, both strong electron withdrawers, and both clearly drawing current away from and then toward the Methyl Group which has an activated methylene bridge that has galvanized, sequestered or continues to galvanize delivery off or continuously sequesters current, eV-, e-, e- integrated into hydrogen as Hydride or H (e²⁻) (p1).

The leftmost hexameter shares a single adhesion carbon linkage as a cyclic hexameter hydrocarbon wall with the centermost cyclic hydrocarbon hexameter which, clockwise, exhibits the uppermost shared carbon of such shared wall participating in an adhesion with NH₂ in the apical uppermost position within the ring although the literature does not present the NH₂ with a line linking this NH₂ to the uppermost carbon in a shared double Carbon to N⁺ adhesion, but presents this as an NH₂ linked to the N⁺ either instead of the carbon, or integrated into such uppermost carbon of the shared wall with the third cyclic hydrocarbon or as NH₂ linked to the carbon but unable to be represented because of the font size in required to represent NH₂ in the visualization. The shared wall seems interestingly vague although the structure of the middle hexameter certainly follows, in other respects, the same characteristics otherwise of the leftmost hexameter, suggesting the visualization, although consistently represented in thiamine within the same visualization otherwise, might not be suggested any particular anomaly. Regardless, the a the shared wall between the middle and rightmost hydrocarbon rings exhibits a double adhesion with a lowermost N⁺, followed by a subapical or lowermost CH₂ in clockwise direction,

followed by a single adhesion to a carbon, followed by the carbon to carbon single adhesion shared with the leftmost hydrocarbon hexameter ring.

These clearly present that a true methylene bridge is linked to an N^+ cation in a way that it may be performing as an electron withdrawing moiety along with linkage to NH_2 or Carbon/ NH_2 moiety in the counterclockwise direction from the N^+ through a double adhesion, all which suggest that current is being drawn in some direction, possibly counter clockwise toward the N^+ and possible from the methyl group in the rightmost aspects of thiamin pyrophosphate. The rightmost hydrocarbon pentameter ring exhibits linkage to the uppermost NH_2 /Carbon of the shared single adhesion to the N^+ in the shared wall with the middle hexameter, such that the uppermost atoms or atom group in the shared wall is linked to the apical nonionized Sulfur of the rightmost pentameter, followed by linkage to the a Carbon through a single adhesion, followed by linkage to another single adhesion to carbon, followed by, along the lowermost unattached wall, a single adhesion linkage in the clockwise direction between carbon and nitrogen. This suggest that current is being directed from left to right, although it is clear that each field comprised of atoms in the thiamin pyrophosphate molecule may be distinct and may be merely converging into and out of the thiamin pyrophosphate molecules to comprise converging, interactive but otherwise distinct systems of current and affect to material, particles, quantum, atom, angular, spatial and other nuances of systems from the microenvironment to systemic and universes level, representing trillions or more of interactive systems and participation in fields that extend to universes levels. The rightmost carbon to carbon wall of the rightmost pentameter exhibits a CH_3 adhered to the lowermost carbon, while the upper carbon of this rightmost pentameter wall exhibits a single adhesion to a methylene bridge as CH_2 , followed by a single adhesion between this CH_2 and another methylene bridge, followed by a single adhesion of such second methylene bridge CH_2 to an oxygen of a phosphate group followed by attachment of this first phosphate group to another phosphate group. Although the lowermost oxygens of the phosphate group are attached to their own hydrogen, and although the unencapsulated oxygen of the concluding phosphate groups is represented as hydridic oxonium, convention considers each of the oxygen atoms before the phosphate group possibly, but at least between the phosphate groups, all as hydridic oxonium, at least according to some of the literature.

The electron transport pathway of oxidative phosphorylation or cellular respiration pathway, frees hydride to emit eV^- of current or fluorescent energy that activates the subsequent aspects of the oxidative phosphorylation pathway by loadbalancing such component in democratized loadbalancing way, resulting in utilization of about 58 percent of such energy for pathway catalysis and packing of about 42 percent of such current or energy as hydride packed into the oxonium exhibited between phosphate groups of ATP or adenosine triphosphate. The structure of thiamine suggests that Phosphate groups and oxonium within such groups can perform as batteries or energy storage modules which molecular structure can withdraw, utilize, replenish, move into different areas of the molecule, shift through carbocations, focus into intramolecular, extramolecular or intermolecular domains, all in a way that can be affected by or effect ionic, hydridic, spatial, molecular, quantum, angular, or other characteristics involved in biology. These provide a very important view of intangible aspects of molecular interactions that may have been inadequately considered in earlier eras, particularly in eras when adequate nutrition may have been excluded as substantial causes of diminished Human outcomes. Thiazoles are

linked to thiazolidinones which have storied experience in therapeutics development since the 1910s or earlier. Information. "Thiamine1." Basicmedicalkey.com

Erythrocyte production begins the encompassing material of the newly produced conception compartmental structure, followed by migration to the hepatic tissues, followed by migration to the inner aspects of bones, all of which are known to involve agrin, particularly involving agrin activity within the spongy aspects of bone structure. Where a central macrophage chaperones development of erythrocytes through development, excretion of the nucleus as a pyrenocyte, release of the reticulocyte, and flipping of phosphatidylserine onto the outer membrane of the pyrenocyte as an 'eat me' signal that stimulates macrophage engulfment by the central chaperone macrophage or by other macrophages or immunological cascade.

SCD, according to the literature, exhibits substantially changed, as in decreased or ameliorated otherwise, levels of polyunsaturated fatty acid species at the sn-2 location of all 31 of the phospholipids included in the study, although changes in these factors are pervasively known to ameliorate structural phase development progressions that determine biological structure while the replacement of these optimal unsaturated fatty acids with either saturated fatty acids or monounsaturated species are known to be linked to diverse pathology. The unconfirmed literature, such as in the already produced but at this instance unascertainable literature, clearly has presented a therapeutic influence of phosphatidylcholine, particularly enriched phosphatidylcholine, to SCD disease.

The data regarding Vitamin D supplementation and Folate supplementation were not remarkable, such that the literature linking choline and phosphatidylcholine supplementation to digestive pathway production of trimethylamine-n-oxide sometimes imprecisely concludes that choline and phosphatidylcholine nutrition or supplementation increases atherosclerotic risk, risks that can include diminished outcomes in SCD and similar disease. However, these studies are counteracted and mitigated by the fact that complete supplementation with choline, phosphatidylcholine, folate, all B Vitamins, glycine betaine, s methyl methionine sulfonium, 65 5678 tetrahydrofolate, sulfur such as methylsulfonylmethane, along with detoxification of dimethylglycine because dimethylglycine downregulates methylene bridge cysteine recycling into methionine performed by both BHMT/BHMT2. Glutathione and tetrahydrofolate as well as Zinc are presented in the popular literature as depletion factors for dimethylglycine, although dimethylglycine dehydrogenase produces sarcosine, formaldehyde and a reduced electron receptor from dimethylglycine, water and an electron acceptor, presenting, again, how metabolism pervasively is centered on movement of current into particular statuses such as storage, molecular energy, chemical energy, structure or eV-. FAD is the preferred electron acceptor while dimethylglycine dehydrogenase also produces glycine from sarcosine, participates in serine metabolism and participates in threonine metabolism. Electron transferring flavoprotein hETF regenerates oxidized FAD by accepting the electron from reduced FAD or FADH₂, while subsequently transferring hETF electrons to membrane anchored ETF-ubiquinone oxidoreductase ETF-QO which directs the electrons toward the mitochondrial electron transport pathway of oxidative phosphorylation or cellular respiration. Sarcosine Dehydrogenase similarly catalyzes linkage to the electron transport pathway by electron-transferring protein ETF through catalysis homologous to dimethylglycine dehydrogenase, such as sarcosine, electron acceptor

and H₂O being bidirectionally converted to glycine, formaldehyde and a reduced electron acceptor. Sarcosine and dimethylglycine catalysis is bidirectional. Importantly, choline is oxidized bidirectionally according to thermodynamics and NAD⁺/NADH balance to trimethylglycine or n,n,n, glycine betaine through the intermediary betaine aldehyde, followed by production of methionine from methylene bridge cysteine and n,n,n glycine betaine within a context that is enabled to be more efficient by a complete B vitamin supplement.

Dimethylglycine, again, downregulates both BHMT and BHMT2 requiring detoxification of dimethylglycine or use of other methylene bridge cysteine depletion pathways. The literature presents an unfortunate correlation of choline and dimethylglycine with increased Superoxide and H₂O₂, in a way that was experimentally lowered by diminishing the activity of complex II and Complex III of the electron transport pathway, although, quite plainly, the electron transport pathway already produces 4 molecules of H⁺ immediately after complex II by activity of complex III along with already producing 2 molecules of H⁺ immediately after complex III within complex IV, such that choline may merely be upregulating dimethylglycine through oxidation of choline into n,n,n trimethylglycine while also choline availability may be relieving inhibition of PEMT and relieving the regulatory influence of P53 upon energy metabolism output.

Information. Febs Letters. Volume 590. Issue 23. December, 2016.

It is important to present that choline oxidation throughput is affected by PEMT availability because of P53 is upregulated when PEMT is diminished in function, the cdp-choline pathway is upregulated also to attach atp to choline when PEMT is diminished in function, and when P53 is upregulated, the levels of pyruvate are substantially diminished also, downregulating the directing of pyruvate to Acetyl-CoA, while availability of Acetyl-CoA for choline acetyltransferase also becomes downregulate to diminish storage of choline as acetylcholine in a way that increase free choline for cdp-choline pathway catalysis, choline oxidation pathway, ore utilization be nonoptimal processes, conditions, contexts, and pathology.

BMT2 is expressed in very low levels in diverse tissues and substantially in hepatic, renal, proximal tubular, adipocytes of breast, visceral adipocytes, subcutaneous adipocytes and hepatocytes, according to the Protein Atlas Online. BHMT is expressed substantially in renal, proximal tubular and hepatocytes, again, according to the Protein Atlas Online, proteinatlas.org.

Information. The FEBS Journal. Volume 283. Issue 19. Pages 3587 to 3603. October, 2016.

Information. J Lipid Res. Volume 38. Number 12. Page 2516 to 2528. December, 1997.

Information. ISBN 978-0-12-820155-8.

Experimental comparative analysis of cellular proliferation at the microbial level revealed that when choline is the primary source of carbon in high salt conditions, decreasing choline prevented growth, while when excessive salt conditions exhibited glucose as the primary source of carbon, then depletion of glycine betaine resulted in diminished growth in a way that could not be mimicked by decreasing choline. These present a practical application of osmoprotection, such that choline direction to the cdp-choline pathway and methyl group availability become primary focus in enabling adequate membrane phospholipids when choline is available without

adequate glucose as a source of carbon, compared to glucose availability, when prominent supplier of carbon without adequate choline, being prevented from supplying adequate material for cellular growth when glycine betaine is removed from recycling pathways. These clearly present that metabolic pathways are foundationally focused on supplying methionine, s-adenosyl methionine and methyl groups from membrane phospholipid synthesis and maintenance as an existentially priority, with PEMT de novo synthesis of choline being a primary source for optimal enriched phosphatidylcholine, storage of methyl groups, storage of energy resources, membrane stability and tissue stability. Although the microbe in this study is associated with nosocomial disease and resistant microbial conditions, diminished availability to both choline however, Phage therapy which applies the diverse phages available in nature, physiology and the biome to engulf and eradicate microbes therapeutically is emerging as a widely inclusive therapy. CRISPR directed toward bacteria either as excision vectors or antisense RNA/DNA impedance, also may be beneficial in this context, including also being potential effective for diverse microbial conditions.

Information. J Bacteriol. Volume 194. Number 7. Pages 4718 to 4726. 6th month, 29th Day, 2012.

The literature clearly observes that the correlation between choline and trimethylamine-n-oxide as well as phosphatidylcholine and trimethylamine-n-oxide, supplementally, is systemically complex, such that when control groups were compared to phosphatidylcholine supplementation groups and separate choline supplementation groups, it was phosphatidyl choline which exhibited the least atherosclerotic lesions and structural remodeling compared to increased levels of atherosclerotic indicators both controls and choline supplementation groups. The most interesting perspective was that plasma trimethylamine-n-oxide was 200 percent higher in the phosphatidylcholine supplemented group compared with control groups and compared with choline supplementation groups. Plasma trimethylamine-n-oxide typical results from cascade of superoxide to H₂O₂, Peroxynitrite, Hypochlorite then trimethylamine-n-oxide prevented by vitamin c, vitamin a, tetrahydrobiopterin, N acetyl L cysteine and L arginine, while also trimethylamine-n-oxide results from nutritional obtainment of meat, chicken, eggs, fish or choline/phosphatidylcholine dense nutritional factors otherwise, along with suboptimal digestive pathway microflora, microflora exhibiting tma lyase activity, trimethylamine or trimethylamine-n-oxide constitutively, butyryl factors of particular version, all accompanied by tnfr alpha enabled relaxation of tight junction proteins in the digestive pathway which allows transit of trimethylamine into the splanchnic system areas where Flavin monooxygenases reduce trimethylamine to trimethylamine-n-oxide, resulting addition of an electron to the outermost oxygen to produce an oxonium in trimethylamine-n-oxide that is similar in structure to the molecule choline. Trimethylamine-n-oxide is known to interact with methylene bridge cysteine by producing a resilience to both methylene bridge cysteine correlated pathology as well as resilience to trimethylamine-n-oxide correlated pathology. Trimethylamine-n-oxide is known as being among the most, if not the most, causally linked indicator of susceptibility to adverse health events, perioperative complication and sudden adverse health events, including sudden adverse behavior.

Information. J Nutr Biochem. Volume 92. Article Number 108617. 6th Month, 2021.

Importantly, SCD disease can exhibit duration of RBC circulation before by splenic recycling or hemolysis at 20 days instead of 120 days. This seems to be an aspect of pathology although aggregation of SCD specific erythrocytes may be more resilient than 20 days. A separate study clearly observes that flippase/floppase/scramblase enzymes may be flipping phosphatidylserine to the outer leaflet of plasma membrane of the nucleus which is typically excreted from erythrocytes may be exhibiting phosphatidylserine on its outer leaflet to early before being excreted from the erythrocyte, although its possible that the nucleus may be unable to be excreted from the erythrocyte, each of which might result in autoimmune activity towards the erythrocytes. However, it is known that phase progression of phospholipids and curvature of membranes are all affected by ameliorated levels of each phospholipid or fatty acyl species associated with each phospholipid, such that changed levels of phosphatidylserine, phosphatidylethanolamine and phosphatidylcholine in the outer and inner membrane leaflets of membranes are known to ameliorate structure and curvature of membranes. LPCAT/MBOAT shuffling and distribution of fatty acids evenly or more diversely among aspects of cellular membranes, when impaired, may also result in some aspects of membranes having impaired curvature while others may have enhanced or typical curvature. Methylene bridge cysteine levels, trimethylamine-n-oxide and other nonresolution cytokines, choline and phosphatidylcholine inadequacy and including diminished PEMT function, all have the potential contribute to, exacerbate or even invoke such syndromes to pathology, such that managing this group of factors is pervasively beneficial therapeutically to and preventative of diverse pathology.

Information. J Clin Invest. Volume 71. Number 6. Pages 1570 to 1580. 6th Month, 1983.

SCD and beta-thalassemia are both conditions that are correlated with impaired pentose phosphate hexose monophosphate shunt pathway, Heinz anomalies, membrane lipid peroxidation, and conclusively, splenic accumulation of methylene diphosphonate, presented clearly the pathways that are impaired when PEMT is inhibited, interactive pathways involving methylene bridge sequestration of current into chemical/molecular/structural aspects energy, and the factors that occur when methylene cysteine bridge cycling and regulation become dysregulated. Interestingly, increase in glucose 6 phosphate dehydrogenase was also observed, suggesting that the “warburg effect” is activate in SCD, resulting in dysregulation of glycolysis and pentose phosphate pathway as upregulation occurs when PEMT is diminished, occurs when P53 is upregulated, and occurs among diminished PEMT balancing of energy production and mining by packing hydride into newly synthesized enriched phosphatidylcholine. Methylene blue instrumentation increased pentose phosphate hexose monophosphate shunt pathway activity in this context.

Am J Hematol. Volume 15. Number 1. Pages 1 to 13. 8th month, 1983.

Information. Int J Nucl Med Biol. Volume 10. Number 4. Pages 269 to 270. 1983.

Osteoclast differentiation and fusion are essential to recycling of bone structure, such that phosphatidylethanolamine mobilization is essential to osteoclast differentiation and function, presenting among diverse other data that phosphatidylethanolamine and its cysteine bridges are integral to diverse aspects of physiology, physiology and health. Dysregulation of

phosphatidylethanolamine or ethanolamine may be substantially different than dysregulation of methylene bridge cysteine.

Methemoglobin Reductase or Ferricytochrome-b5 reductase utilizes NADH, NADH exhibiting factors, or factors that delivery Hydride or the extra electron integrated into hydride to the FAD domain of Ferricytochrome-b5 as a cofactor to metabolize Ferric 3+ Iron to Ferrous 2+ Iron, although the enzyme exhibits an integrated FAD domain which is integrally involved in using NADH to perform such catalytic conversion of Fe 3+ to Fe 2+. Canonical cytochrome-b5 reductase catalysis includes NADH, H+ and ferricytochrome-B5 as substrate for cytochrome-b5 reductase to produce NAD+, 2 molecules of ferrocyclochrome-b5 as products. NADH-Cytochrome -b5 reductase is found in pervasive cellular versions although a soluble version that is truncated to include only the larger domain or encoded as an alternative transcript is exhibited in erythrocytes. FADH distributes the Hydride or hydridic character from NADH and distributes it to the small molecules of cytochrome-b5. Movement of hydride or Electrons or current is a revealed integral priority in many more complex interactions among small and large molecules, as well as complex and simple molecular, metabolic or chemical reactions, including sometimes complete molecular pathways. Cytochrome-b5 reductase also performs elongation and desaturation of fatty acids, participates in metabolism or detoxification of therapeutics and participates in cholesterol biosynthesis.

Information. Crit Rev Biotechnol. Volume 34. Number 2. Pages 134 to 43. 6th Month, 2014.

Methylene Blue instrumentation along with Phototherapy causes massive deterioration and apoptosis among breast oncology tissue bases with considerably less effect to typical cellular entities in tissues. Methylene blue is a therapy for Alzheimer's disease, is a therapy for behavioral health and psychological/psychiatric conditions, increases flow of blood to the brain, supports mitochondrial function, and performs as an electron pathway factor that reduces superoxide to water, circumventing the role of superoxide dismutase production of H₂O₂ from Superoxide as well as circumventing the role of catalase in producing water from H₂O₂, such that the effects of trimethylamine-n-oxide, peroxyxynitrite and methylene bridge cysteine in deactivating superoxide dismutase and deactivating catalase becomes instantly alleviated by methylene blue instrumentation. Methylene blue is a cationic thiazine dye. Thus, the effect of methylene blue and photodynamic therapy were not aggregately that of canonical apoptosis pathways and included upregulation of autophagy which typically results in apoptosis among nonresistant oncology cellular entities which rely upon proteolysis for oncological phenotype while autophagy typically is only linked to oncology when a resistant phenotype has emerged. Thus, methylene blue uses irradiation from phototherapy to invoke distress signaling and shuttles the cellular phenotype through the Bag1/Proteolysis compared to Bag3/autophagy decision paradigm which involves BAX, BAK, BCL2, Cytochrome C, Mitochondrial Status and influences of methylene bridge cysteine, all of which are foundational survival/apoptosis signaling axes. The inclusion of methylene blue suggests that even these axes are reduced methylene bridge metabolism and introduction of regulatory influence through stabilization of the methylene bridge hydridic sequestration pathways to prevent dysregulation among chemical,

molecular, metabolic, structural, and storage phases of hydride sequestered by methylene bridge into cellular dynamics and structural phase progression. Cytochrome C release is remarkable event in apoptosis pathways and cytochrome c is an aspect of the electron transport pathway of oxidative phosphorylation cellular respiration. Interestingly, methylene blue circumvents complex I and circumvents complex III of the electron transport pathway and then donates electrons to cytochrome c, which is very interesting because release of cytochrome c is an important pathway of invoking cellular apoptosis or cellular fragmentation. Not only does donation of electrons enhance cytochrome c oxidase activity, but conditions and therapies that modulate complex I and complex III can be diminished by Methylene Blue. Cytochrome C oxidase is a major loci of oxygen utilization in the mitochondria and cytochrome C oxidase performs the scission of the oxygen/Oxygen adhesion while resultantly producing binuclear loci comprised of heme a₃ and CuB presumably enabled by a covalent cross link between tyrosine 280 and one of the histidine ligands. Again, proton donation for the binuclear heme a₃ and CuB active loci seems to be obtained from tyrosine 280 cross linked to the histidine ligands of CuB. Since mitochondria proliferate, deproliferate, attach to mitochondria, expand to hundreds within one cellular entity, migrate between cellular entities, exhibit DNA, control cellular proliferation and exhibit capacitance including constituting strong aspect of capacitance comprising consciousness and cognitive function, its difficult to exclude mitochondria from the category of living things or living entities. Methylene Blue inhibits MAO-A, delays cellular aging, disrupts aging, improves dementia, ameliorates huntington's disease, disrupts alzheimer's, delays aging effects to skin, improves memory and cognition, increases mitochondrial NAD⁺ synthesis, increases ATP synthesis, increase brain cellular duration of being, all according popular and clinical information. Although methylene blue integrates with DNA to enable photosensitive segmentation of the foundational DNA helical structure in a way that clearly links methylene blue to the methylene bridges that comprise the linkage between molecules of DNA. Methylene blue structure exhibits three linear cyclic aromatic hexameters linked to one another with by a double adhesion carbon bridge between the hexameter exhibiting Nitrogen and Sulfur at opposite unconnected apices in the central hexameter, such that each of the complete carbon hexameters also exhibit nitrogens oriented toward the direction of the sulfur in the central hexameter, and such that a resonant unconnected balancing CL⁻ ion balances the sulfur as an S⁺ cation of the central aromatic hexameter, and such that each of these axial complete carbon aromatic cyclic hexameters have two methyl groups attached to the nitrogen that is oriented in the direction of S⁺ of the central hexameter. Thus, the linear tri polycyclic aromatic hydrocarbon links two molecules of choline, except that the choline's nitrogens are not ionized, but seem to have been replaced by the ionization of the sulfur that is ionized in the central hexameter of the of the linking structure as well as is balanced by CL⁻ paired with the S⁺, although the canonically, the CL⁻ may be considered to be balancing the whole structure of the methylene blue molecule. Some of the literature presents the complete carbon hexameter that shares a single adhesion carbon to carbon wall or bridge with the central hexameter in a way that includes a double adhesion to the nitrogen, cationic ionic character of such nitrogen and with the CL⁻ depicted as balancing this axial Nitrogen Cation, along with the sulfur presented in the central hexameter not having an ionic characteristic or not being signed. A Diverse group of oncology including multiple drug resistant lineages of oncology were all extremely susceptible to deterioration at very low dosage exposure to b-nor-methylene colchinoid PT-100, such that the exhibition of

oncology cellular entity deterioration did not require apoptosis, at least not canonical nuances of apoptosis. The groups of susceptible conditions including oncology, lymphoma, leukemia, carcinoma, Nalm6, Melanoma, MCF7, acute myeloid leukemia and BJAB. PT-100 was particularly effective, among other colchicoids, while colchicoids are typically derivatives of *colchicum autumnale* L which is known commonly as autumn crocus, meadow saffron or other names not mentioned here because of their ludeness, but is not a true crocuses plant although *colchicum autumnale* L is an autumn flowering plant in the colchicaceae.

Information. "B-nor-methylene colchicinoid PT-100" ACS Omega. Volume 7. Number 3. Pages 2591 to 2603. 1st Month, 11th Day, 2022.

Information. Environmental Nanotechnology, Monitoring and Management. Volume 7. Pages 110 to 120. May, 2017.

BMC Oncology. Volume 17. Number 1. Page 194. 3rd Month, 15th Day, 2017.

Information. "Methylene Blue." Thefuelstop, Website, fuelstop.com.

Information. Antioxidants (Basel). Volume 10. Number 2. Page 305. 2nd Month, 16th Day, 2021.

Information. "O-O." Proceedings of the National Academy of Sciences. Volume 105. Number 31. Pages 10733 to 10737. September 2008.

5-HT₃ receptors are postsynaptically activated by serotonin or 5-hydroxytryptamine, the neurotransmitter, resulting in opening of the 5-HT₃ receptor channel to allow a typically excitatory response. Sodium and potassium ions are typically allowed inward in a pattern of rapid activation and desensitization. 5-HT₃ receptors are at least ionotropic and is included in the Cys-Loop Supergroup that includes GABA A in two variants, Nicotinic Acetylcholine receptors and Receptors activated by Zinc. Arylguanidines, as dihydroquinazolines including A6CDQ, are examples of how addition of a methylene bridge to arylguanidine structure performs somewhat pervasively in a 5-HT₃ receptor agonist, regardless of the function of the arylguanidine to which the methylene bridge is attached. These suggest clearly that methylene bridge accumulation results in receptor activation, enhancing the ability of methylene bridges to sequester systemic current mobility, although in this instance the example of how including methylene bridges into molecular structure can activate molecules and proteins in active status for receptor, ligand, and current activation. Methyl group introduction ameliorates the agonist function of the methylene bridge enabled arylguanidine.

Information. "Methylene Bridge to 5-HT₃." ACS Chem Neurosci. Volume 10. Number 3. Pages 1380 to 1389. 3rd Month, 20th Day, 2019.

Phenylene as cycloparaphenylene bridged in multiplicity using methylenene bridges produce nonalternate aromatic belts when using nickel intermediated aryl-aryl linkages of triflate functionalized pillar arene, all of which causes methylene bridge enabled coplanarizing of paraphenylene, decrease in energy gap, increased pi conjugation, and high internal strain energies near 110.2 kcal mol⁻¹.

Information. J Am Chem Soc. Volume 142. Number 29. Pages 12850 to 12856. 2020.

Studies of nonhuman organisms indicates that increased levels of phosphatidylethanolamine are correlated to increased levels of methylene bridge cysteine when the control groups were obtaining phospholipid supplements otherwise, and a control group from nonsupplementation was omitted from the study. There were no substantial differences between the phosphatidylethanolamine among all groups in the study, including the phospholipid supplemented control group, suggesting that not all instances of increased methylene bridge are the same, such that increased levels along with correlative increased cycling or metabolic throughput may reflect exhibition of beneficial processes and conditions.

Information. British Journal of Nutrition. Volume 94. Issue 5. Pages 684 to 690. November, 2005.

Neurodegenerative disorders, refractory discomfort linked to oncology therapy, all are presented in professional service contexts as being alleviated or prevented by methylene blue. Androgen reliant and androgen unreliable cellular proliferation disease are each responsive to methylene blue. N-Oleoyl-phosphatidylethanolamine and EGCG are both utilized to diminish the level of hunger in dieting populations, although studies observed that after about 4 weeks, such effects become diminishes, although NOE which has ethanolamine instead of phosphatidylethanolamine, produces a similar effect. NOPE1, NOPE2, 1-palmitoyl-2-oleoyl-phosphatidylethanolamine, NAPE, anandamide and other n-acyl ethanolamines including PEA, OEA, NAE, AEA, DHEA/synaptamide/n-docosahexaenoylethanolamine, n-acetylethanolamine, n-palmitoylethanolamine, n-oleoylethanolamine, n-arachidonoylethanolamine, all are molecules used in therapy for a diverse group of conditions, diseases and behaviors.

Information. "anandamide." Progress in Lipids Research. Volume 2022. Article 101194. 9th month, 20th day, 2022.

Hepatoma assay, in a study, observed a 47 percent increased in phosphatidylethanolamine compared to phosphatidylcholine in the inner mitochondrial membrane while a this same ratio increased y 117 percent in the outer mitochondrial membrane.

Information. Oncology Letters. Volume 11. Issue 2. Pages 133 to 139. December, 1980.

Phosphatidylcholine can move from the inner to the outer mitochondrial membrane as well as move from the outer mitochondrial membrane to the inner mitochondrial membrane.

Nat Commun. Volume 10. Number 1432. 2019.

Phosphatidylethanolamine integrates with, and links into the membrane, Calcium transporting transmembrane proteins.

ISBN 978-0-12-800047-2.

Phosphatidylethanolamine is essential to stabilizing Translocase of Outer Membrane enzyme which is essential to its stabilization and when phosphatidylethanolamine is inadequately available, impaired production of mitochondria results through Translocase of Outer Membrane inefficient integration with precursor proteins.

J Biol Chem. Volume 288. Number 23. Pages 16451 to 16459. 6th Month, 2013.

Information. *Minerva Gastroenterol Dietol*. Volume 57. Number 3. Pages 323 to 331. 9th Month, 2011.

Information. "Methylene Blue." Kotsanis Institute Website. Kotsanisinstitute.com

Glycosylphosphatidylinositols are fusion, linking or integrating phospholipids that exhibited mannoses that are modified by ethanolamine phosphate such that ethanolamine phosphate is linked by mannose 1, mannose 2 is removed typically when the glycosylphosphatidylinositol integration with ethanolamine phosphate is transient, the enzyme PIGG which transfers ethanolamine phosphate to mannose 2 causes glycosylphosphatidylinositol deficiencies when PIGG is dysfunctional, PIGG dysfunction causes neuronal dysfunction, and preferential mannose 2 ethanolamine phosphate bridges are found in CD59, Ect-5 prime-nucleotidase, and Netrin G2.

Information. *EMBO Rep*. Volume 23. Number 7. Pages e54352. 7th Month, 4th Day, 2022.

Ethanolamine Plasmalogen decreases with age, decreases correlative to level of dementia and alzheimer's disease, and diminished levels of plasmalogen ethanolamine in every version of dementia as well as level of dementia observed in a particular study. Clearly, the role of phosphatidylethanolamine in increasing methylene bridge cysteine can be clearly linked to PEMT function which produces methylene bridge cysteine as a product used for self-regulation that relies upon recycling pathways and transsulfuration pathways for sustainment of PEMT function by either removing the downregulating methylene bridge cysteine or by translated methylene bridge to methionine and then s-adenosyl methionine. S-adenosyl methionine and methylene bridge cysteine are both substrates for PEMT function. The obscure literature presented in other aspects of the compendium of research linked to this document presents the possibility, from observed fractional studies of traced metabolites in these pathways, that PEMT may utilize a fraction of its own metabolites, substrates and products in its catalytic activity, although the literature does not clearly confirm such dynamics even in the works where such fraction specificity is eluted in analyses. The literature, also, it should be mentioned, does not present a consensus convention on if the PEMT2 only or most exhibits catalysis at the mitochondrial associated membrane between endoplasmic reticulum and the outer mitochondrial membrane. Certainly, PEMT amplifies biosynthesis by producing methylene bridge cysteine and by upregulating protective mechanisms that enhance or assure biological development and biosynthesis. The packing of hydride into the lead group of phosphatidylethanolamine to produce enriched phosphatidylcholine, resulting in packing of methyl groups into membranes and structure, certainly constitutes methylene bridge diversion and methylene bridge deactivation, such that methyl groups are known to deactivate methylene bridge cysteine along with abated growth of the leading edges of expanding lattices in membranes and structure.

Information. *J Lipid Res*. Volume 48. Number 11. Pages 2485 to 2498. 11th Month, 2007.

A particular study observes that although Alzheimer's disease exhibits laterality and ipsilateral specificity of plasmalogen phosphatidylethanolamine deficiency, local to each area or lesions which constitute causality for alzheimer's disease, the caudate nucleus was not likewise strongly affected by phosphatidylethanolamine plasmalogen inadequacy for huntington's disease and the substantia nigra was not as likewise strongly deficient of phosphatidylethanolamine plasmalogen

in parkinson's disease. Membrane instability resultant of phosphatidylethanolamine plasmalogen inadequacy seems to be an integrally causal factor in alzheimer's disease.

Information. Brain Res. Volume 698. Number 1 and Number 2. Pages 223 to 226. 11th Month, 1995.

Ethanolamine has been found in the center of the milky way galaxy.

Information. "Ethanolamine." Proceedings of the National Academy of Science. 2021. Volume 118. Number 22. Page e2101314118. 5th Month, 24th Day, 2021.

Ethanolamine Plasmalogen decreases tnf-alpha in lower digestive pathway, preventing the nonresolution phase relaxation of tight junction proteins that is linked to leaky gut syndrome and is linked to trimethylamine reduction to trimethylamine-n-oxide which occurs in hepatic tissues after trimethylamine transits tnf-alpha phenotype digestive pathway membranes.

Information. ACS Omega. Volume 6. Number 4. Pages 3140 to 3148. 2021.

Ethanolamine plasmalogen enhances the efficiency and capacity of phagocytosis while inadequacy produces impaired ability to phagocytose experimental particles, linking upregulated proteolysis linked to pervasive disease and aberrant proliferation to inadequate availability of newly obtained phosphatidylethanolamine. Similarly, digestive pathway cellular entity proliferation increases responsively to ethanolamine plasmalogen availability. These suggest that not only does methylene bridge cysteine of different versions exhibit the potential to attach to structure or affect spatial aspects of biology by sequestering away electrons, hydride or eV- in a way that can deteriorate or destabilize the energies that enable quantum an atom level structures to persist, but the experimental literature and data also both suggest that structural aspects of biology can exhibit deterioration if recycling of methylene bridges is not adequately supported by nutritional, supplemental or therapeutic obtainment of carbon, methylene bridges, ethanolamine and methyl groups.

Information. Frontiers in Immunology. Volume 9. 2018.

Ethanolamine changes the characteristics of digestive pathway microflora beneficially to diminish nonresolution cytokine activity. DHA and EPA Ethanolamine Plasmalogen decreases in atherosclerotic lesions by 98 percent and serum LDL-c by 73 percent, while increasing CYP7A1 expression through diminished activation of FXR receptor. Experimental niclosamide ethanolamine, or NEN, which is an anthelmintic therapeutic, instrumentation produces glycemic blood control, uncouples mammalian, mitochondria, prevents steatosis resultant of a high fat diet, all of which represent useful diabetic therapies although uncoupling of mitochondria can result in energy inefficiency and can increase lipid oxidation. Oral nen instrumentation in experimental contexts results increased energy utilization and increases lipid metabolism.

Information. Nat Med. Volume 20. Number 11. Pages 1263 to 1269. November, 2014.

Information. Journal of Functional Foods. Volume 66. Number 3. Article 103824. 3rd Month, 2020.

Information. British Journal of Nutrition. Volume 120. Issue 3. Pages 241 to 249. 8th Month, 14th Day, 2018.

Information. In Vitro 'Cellular' Dev Biol Anim. Volume 52. Number 5. Pages 562 to 567. May, 2016.

Carbonaceous meteorites have been found to exhibit amino acids, nucleobases and sugars, such that organic material density seems to be correlated with lower levels of ¹³C or carbon 13, explaining why carbon 13 levels have been diminished in meteorites exhibiting organic material.

Information. Science Advances. Volume 7. Issue 18. 4th month, 28th Day, 2021.

Thus, the list of diagnostic, quantum, molecular, metabolic, genetic, systemic, and environmental factors along with natural, pharmacological and wholistic ways of managing these nuances of factors in Human outcomes with which this analytical artifact is associated are a useful representation of data science. The most incipient findings may represent in nonlinear and disjoint derived curves or graphs. However, integration of each of these curves or graphs, although the data points or scatter graph may be difficult to integrate into one column or shard, produce an increasingly competent or increased uniform curve or Graph. Thus, subsequent findings analyzed with a social constructivist integration on these perspectives can result in derivation of increasingly competent findings and increasingly uniform integrated curves and graphs. The objectives of data Science, thus, seems to be movement toward the most uniform graphs and curves in which the relationships between the variables of a derivative function are increasingly stable and such that highly predictable derivation of the value of any such variable can occur from the ascertainment of the known value or characteristic of any of such variables otherwise.

The culmination of data science objectives seems to be the generation of increasingly linear graphs, curves, training data, tensors, correlates, causal links, Mechanistic links, dualities or inferential correlations, multiplicities, information tuples, shards, data columns, columns, natural language representation of these as stories. The object of data Science also seems to include ascertainment, with increasing certainty, of relationships between variables, with increasing certainty enabling derivation of the values or characteristics of any variable using the values or characteristics any other of these variables or using variables otherwise. Resultantly might be achieved structured logical, mathematical, clinical or other simple or complex analyses, explorative or presumption questions which can be presented as proofs that, also, with increasing certainty confirm such relationships, values and characteristics.

The interactions of analytical processes as observations in polynomial time and the nonpolynomial time interactions which are known to reshape, both, outcomes in antecedent eras and outcomes which are to emerge, to exhibit relationships, values and characteristics increasingly produce by the analytical processes themselves, should be, can be, and optimally should be directed to bend future outcomes and future potentialities to Human benefit in the eras of immediacy and toward increasing benefit of humanity wholistically, extended to include also Humanity in antecedent or future eras, although Humanity, now, obviously performs as a priority pathway for Humanity to be benefited in the future.

Because a most unique benefit provided to the universe is experience or exhibition of livingness among inanimateness otherwise among the known Universes, thus both enable vicarious exhibition of vital being on behalf of the known Universe, but also potentially being vibrant confirmation through the Human experience that Universe, itself may, too, be living. Data Science, thus continually finds and presents confirmation of Human livingness, information which can be applied to sustain the Human Experience, confirmation to the Universes that through the Human Experience it vicariously or integrally too, lives, while also enabling integrated of Universes level integral share priorities in sustaining Humanity among the Universes.

Thus, an objective derivatization of pathology and disease emerges, because management of methylene bridges is beneficial in discomfort, genetic disease, adverse physiological outcomes, adverse health events and adverse behavior. Pathology seems to be the systematic deterioration of packing of chemical, molecular, hydridic and constitutive current into phospholipid lead groups that occurs because of anaphylactic response. The anaphylactic response occurs resultant of inadequate obtainment of ethanolamine, overuse of recycled methylene bridges, methylene bridge cysteine attachment to, destabilization of, or angular influence to structure of quantum and structural aspects of Atoms, redirection of ethanolamine toward autophagy instead of to phosphatidylethanolamine as substrate for PEMT, redirection of phosphatidylethanolamine toward autophagy but exhibition of Bag1 prevalently compared to Bag3 to result instead in upregulated proteolysis, resistant phenotypes that prevent autophagy from clearing dysregulate proteins and allergens or nonresolution cytokines, upregulation of the cdp-choline pathway both resultant of inhibition of PEMT and resultant of environmental/electromagnetic/atmospheric/xenobiotic/artificial and other pollution/particulate including cytokines that inhibit PEMT such as cytokines invoked by pathogens or particulate, commandeering of methylene cysteine bridges by pathology promoting factors and upregulation of phosphocholine as a source of energy for managing anaphylactic activators, redirection of ethanolamines including ethanolaminephosphate/cdp-ethanolamine/phosphatidylethanolamine/PMME/PDME toward antihistamine activity, diminished storage of Hydride and methylene bridges as phosphatidylcholine because of diminished PEMT activity resulting in structural depletion that causes cellular entities to exhibit unfolded protein response along with upregulated proteolysis and cdp-choline pathway that reprograms cellular entities toward upregulated BCL2/Survivin/GPCR/S1P/S1PR/GSK3B signaling that hastens and extends differentiation, redirection of s-adenosyl methionine toward diverse methyltransferase that attach methyl groups to allergens/toxins/hormones/cytokines/xenobiotics/particulate causing increasing levels of methylene bridge cysteine while also depriving PEMT of substrate, genetic conditions which pervasively produce methylene bridge cysteine and cause nonresolution cytokines that affect PEMT, nonresolution phase transcription of genome that results from all of these factors to deprive typical and optimal transcription from occurring, deficiency in aminos/nutrients/phytonutrients/enzymes/substrate/products that would supplementally alleviate genetic and epigenic inadequacy.

Disruption of PEMT activity also changes or diminishes the supply of phospholipids enriched in DHA, EPA, Oleoylate, Palmitate first fatty acid in fatty acid beta oxidation, extended length arachidonic acid, omega-3, diversity and ether linked for membrane insulation, both through diminished PEMT and exacerbated by inadequate nutritional obtainment of such factors. The diminished production of enriched phosphatidylcholine through diminished PEMT activity causes diminished ability of lands cycle resolution phase phospholipases and phosphodiesterases to free phosphatidylethanolamine plasmalogen, phosphatidylcholine plasmalogen, phospholipid plasmalogen otherwise for mixing and shuffling, followed by reattachment to phospholipids or reattachment to lysophosphatidylcholine by LPCAT, MBOAT and other fatty acyl transferases. The synthesis of a diverse group of resolution phase factors and resolution phase cytokines occurs from freed membrane fatty acids using both resolution phase and nonresolution phase phospholipase and phosphodiesterase including resolvins, neuroprostanes and others. Methylene bridge cysteine also disrupts systemic molecular, cytokine, chemokine and other signal transduction, including causing disrupted neuronal signaling or changed activation of neuronal receptors, including changing of import agrin signaling in diverse areas including bone structure and extracellular matrix. These factors promote accumulation of methylene cysteine bridges and redirection of encapsulated methylene bridges toward nonresolution cytokine signaling which disrupts lipid chemistry and phase progression of lipids and phospholipids that produces microstructure, intermediate structure and super structure, all of which are involved in producing hydridic, angular, spatial, ionic, quantum and atom levels influences that are essential to typical or optimal physiological, metabolic, molecular and systemic function.

Methylene bridge cysteine also causes promotion of BAX, BAK, cytochrome c release and other factors that increasingly potentiate programmed cellular deterioration, particularly through the action of P53 that is upregulated when diminished PEMT function occurs. Resultantly of methylene bridge cysteine upregulated availability is a, likewise, upregulation of BCL2, choline kinase alpha, CDP-choline pathway, proteolysis, GCPR, and other survival signaling and differentiation pathways, all in a way that directs adaptive, complements, cellular, humoral and other aspects of highly conserved immunology becoming directed toward prevention cellular deterioration and tissue deterioration, including NOS2 which is required to enhance the turgor or strength of individual cellular entities to counteract depletion of the number of cellular entities per micrometer as well as counteract the increased percentage of cellular entities which become paused in hypertrophic enlarged phases that is also an adaption to cellular entity density depletion. Enlarged or hypertrophic phases can fill up space produced by massive cellular entity deterioration in a way that is comparative optimal tissues which exhibit increased number of cellular entities per micrometer along with decreased diameter of each cellular entity.

Among original inhibitors of choline kinase include adenosine, pregnenolone and the 1940s and 1950s discovery of purinyl-L-histamine which has escaped, along with dimethylthetin first characterized in 1878 at the latest and along with glycollate first described in the 1840s at the latest, application to cause what could have been a remarkable improvement of outcomes at massive population levels.

These describe why antihistamine therapy derived in the 1910s became diminished as a focus in therapy in correlation to emerging of diverse sources of industrial, atmospheric, electromagnetic, audio, magnetic and other pollution/particulate, such that cumulatively the factors presented here cause dysregulation of methylene bridges and methylene bridge cysteine in a way that promotes existential challenges among cellular entities individual and among tissues bases. Managing one factor among these, as an example, merely allow the other factors emerge or continue to downregulate PEMT, dysregulate methylene bridge cysteine, deplete ethanolamines, deteriorate atomic structure, deteriorate energies that stabilize subatomic or disrupt quantum/angular/spatial level characteristics require for the spooky special effects typical of biological function, and deteriorate of essential aspects of prolonged biological and physiological function, particularly aspects of sustainability essential in shaping emergence, phases, and outcomes regarding health conditions, pathology and aging. Importantly, therapies pervasively, but not comprehensively, increase methylene bridge cysteine, increase cytokines that inhibit PEMT or compete with PEMT for methyl groups at cytochrome, COMT, s-adenosyl methionine, and PEMT catalysis. The data, to this instance, suggests an essential inclusion of wholistic factors influences, conditions, and status that stack up on, dysregulated, exacerbate, change, or improve methylene bridge and methylene bridge cysteine. Wholism, including the way in which natural systems, artificial systems and civilization's systems affect methylene bridge availability and methylene bridge cysteine availability. Methylene bridge availability, regulated availability of methylene bridge cysteine and regulation of methylene bridge cysteine levels, all emerge as convergent single focus loci to which all layers of natural, artificial and civilizations' can be diagnostically, causally, therapeutically and behaviorally correlated.

These factors are useful in understanding how a continuous exhibition of cellular survival status or existential challenge results in eventual deterioration of mitochondrial potentials, separation of the typical hundreds of mitochondria from attachment to the endoplasmic reticulum through the mitochondrial associated membrane where PEMT2 may be transmembrane protein between these through the mitochondrial associated membrane or where PEMT2 may be integrated into either of these outer membranes, or where PEMT2 may be in other areas of mitochondrial membranes. The literature suggests that PEMT2 may be an integral mitochondrial associated membrane and the literature observes that supply of phosphatidylserine, Ca^{2+} , Phosphatidylethanolamine, phosphatidylinositol or other essential factors occurs, in particular, from the endoplasmic reticulum, through the mitochondrial associated membrane and to mitochondria. NOS2 expression, impaired PEMT function, particularly impaired PEMT2 function, trimethylamine-n-oxide, and upregulated methylene bridge cysteine, all are integral to adverse physiological, cognitive, neuronal and behavioral outcomes. However, it is the continuous expression of the transcriptional activator AP1 which would ordinarily deplete its own cytokine resources and downregulate telomerase TERT function to result in increasingly limited division or proliferation of cellular entities affected by disease or nonresolution cytokine proliferation through fusion of chromosomes and exhibition of senescence. It is the specificity protein transaction factor SP1, which is included g quadruplexes within telomeric regions that is upregulated by destabilization of g quadruplexes which enables access to SP1 and other cytokines by transcription polymerases, along with SP1 downregulation of Telomerase to prevent telomeric attrition that would clean G quadruplexes from telomeric regions, which

counteracts or surmounts the way in which AP1 prevents extended division or mitosis among lineages of diseased cellular entities from occurring. SP1 copy number increase because of SP1 in telomeric regions and G quadruplexes, along with destabilization of G quadruplexes to allow transcription polymerase access to what can be increasing number of quadruplexes that may harbor SP1 or other cytokines. SP1 and AP1, both inhibitors of PEMT, both upregulate the CDP-Choline Pathway, both being opposite regulators of telomerase, each have roles in typical and optimal physiology as well as may be commandeered by pathology and may be commandeered by pathology causing vectors.

Although AP1 enhances nonresolution cytokine signaling is constitutive of nonresolution cytokine signaling, it inherently limits cellular entities affected by or emitting nonresolution signaling, suggesting that it may be an effector of senescence, at least among diseased or impaired cellular entities, such that SP1 upregulation diminishes this ability to limit disease progression that eventually can result in intricate and comprehensive impairment of PEMT2 that is link to disease. The factors presented here are all able to be prevent, alleviated or have their detrimental effects removed. Inhibition of AP1, as an example, causes disease phenotypes at the cellular level to be become removed and cellular entities then can come to exhibit near embryonic, tissue competent phenotypes.

Diseases are pervasively or inclusively the cumulative hyperactivation of anaphylaxes pathways by multiple cumulative factors to cause hydride/e⁻ sequestered by methylene bridges into molecular, chemical, quantum, angular, polymerization potential, and into membrane structure as enriched omega-3 EPA/DHA diverse resolution-phase-enhancing ether linked phosphatidylcholine all to become changed. Dysregulation of methylene bridge cysteine emerges to above 6 or 7 $\mu\text{m/L}$, causing aberrant polymerization, differentiation and development, while also making these available for pathology promoting processes to disrupt signaling, quantum/atom/particle level electromagnetic/angular influence, spatial aspects of physiology interactions and enable sequestration of energy from all manner of biologically active molecules or structure, and disrupt spatial aspects of biology, . Methylene bridge translation of current, eV⁻, e⁻ or hydride into molecular, metabolic, chemical, polymerization and structure as de novo synthesized phosphatidylcholine by PEMT, all become changed through particularly diminished catalysis by PEMT which causes upregulation of anaphylaxes pathways and is complicated by trimethylamine-n-oxide. Thus, diseases result in deterioration of cellular membranes and tissue, existentially, resultant in survival focused changes to cellular membranes, tissues and physiology, resulting in cytokine expression which counteracts massive apoptosis among cellular entities, decrease of cellular entity density per micrometer, decreased availability of membrane phospholipids to abate growth of membrane structural leaflets, and decreased diversity of fatty acids for shuffling in the Lands cycle by LPCAT/MBOAT and other fatty acyltransferases. Because natural, artificial, endogenous, exogenous, xenobiotics, particulate and even therapeutics all contribute to inhibition of PEMT and competition for PEMT substrate, the result is an cumulative and cooperative deteriorate of enriched phosphatidylcholine, upregulation cdp-choline pathway, upregulation of nonresolution cytokine, increase in feed forward supply of substrate for nonresolution cytokines, deterioration of cellular membranes, deterioration of tissue, and impaired capture of freed eV⁻ to impair cognition and consciousness, as well as

phased increased diminished of factors contriving angular/quantum/atom/spatial/spooky and hydridic effects essential to maintain ph between near 7.2 and 7.6 which enable consciousness, cognition and biological stability. These are all aspects of anaphylaxes pathways.

CYP3A4, among other cytochromes and cytochrome P450 isozymes, are known to process a diverse array of therapeutics and pharmacological agents into derivatives or metabolites. Processing pathways can involve obtainment of an inactive version of a therapeutic, such as a methylated versions, followed by processing by CYP3A4 to produce a demethylated or desmethyl version, constituting an activating change, producing an active therapeutic. The desmethylated version, thus, also, must be detoxified or cleared from physiology through processing typically and somewhat pervasively involving attachment of a methyl group to cause entry into methylation pathways. Particularly, COMT which competes with PEMT, as well as a large group of other transmethylases which also compete with PEMT for s-adenosyl methionine as substructure, are involved in processing of therapeutics.

cMAX is an indicator or statistics regarding the levels, density, or availability which one dose of a therapeutic achieve in the physiological environment before diminishing without being followed with another dosage. Interesting in this regard is the observation that grapefruit and grapeseed extract and green tea extract are known to substantially diminish both imanitib and its activated desmethyl metabolite desmethyl imanitib, resulting in enhanced clearance that is correlated to diminished therapeutic exposure to tissues to which imanitib is applied. Another study observes that imanitib can cause aberrant methylation by promoting the release of methyl groups through cytochrome CYPP3A4, while imanitib is experimentally susceptible to increased methylation of DNA at cpg islands which promotes resistance to imanitib. Uniprot presents catalysis of CyP3A4 as being an organic molecule or R group, 02 nd a reduced redox factor such as NADPH hemoprotein reductase being translated into an alcohol, molecule of H⁺, a molecule of H₂O and an oxidize NADPH Hemoprotein reductase. These present an interestingly observable perspective of how current is utilized in physiological processes, and presents how the leaving of a methyl group from a molecule causes the molecule to become an active molecule with methylene bridges that begin to interact more directly and more completely with redox transactions constituting movement of hydride, electrons of eV⁻, although the release of CH₃ in the activation of imanitib results in synthesis of a lactam which is among the foundational categories of derivatives first produced from thioglycolic acid in the first several decades of the 1900s regarded as being centers of medicinal chemistry. Uniprot presents CYP3A4 catalysis as a unidirectional transaction.

Grapefruit, as another example, can increase the AUC, area under the curve, which is an observation of the bioavailability of therapeutic over a duration to ascertain level of bioactivity of a such therapeutic at thresholds of availability indicative of such bioactive activity, particularly increasing such bioavailability for felodipine although grapefruit is a wellknown to change bioavailability for therapeutics. Although grapeseed extract and green tea extracts are known to change CYP3A4 catalysis, there may be multiple mechanisms involved, such as phosphatidylcholine being known to enhance transit of digestive pathway membranes by nutritional and therapeutic factors and such as similar enhanced absorption produced by

piperazine. This present accompaniment of natural or modulative therapeutics as way of changing the availability, effect and duration of effect of pharmacological factors or therapeutics otherwise for consideration in therapy. However, these analysis are included in a compendium research which suggests utilization computational proteomics that include providing therapeutics that have been locked into inactive status followed by providing separate proteomics that modulate release of the therapeutic payload presented in the therapeutic proteomic molecules. Strategice include providing an activating therapeutic vector that can be monitored to determine its activation graph or its affect to the therapeutic molecules, while also an inactivating vector could be provided that can also be utilize dimmish the effect of a therapeutic molecule, thus enable are upregulators, downregulators and abrupt abatement capabilities for any therapeutic molecules provided to affect physiology, biology and behavior. Similarly presented in such compendium of research associated with this analysis is the ability to have such modulative vectors assay each cellular entity individually for availability, for exhibition of particular characteristics, exhibition of genetic or epigenetic characteristics, pathology proteins or conditions, thermodynamic characteristics, or other factors, followed by activating or deactivating a therapeutic molecule. Most interesting, also, is the potential of having any therapeutic molecule not only having different molecular sequences which can be released independently of one another, but also having having each molecular therapeutic payload sequence release an activation sequence that automatically activates another molecular therapeutic sequence payload, resulting in walking an individual cellular entity, tissue base, or physiology through a rehabilitative process that impose a development, therapeutic or other complex procedural outcome. It is also to have each released therapeutic payload sequence merely release another computational assay domain that assays for how effective therapeutics have been or the current status of such process, followed by enhancing the availability of therapeutic payload to move the rehabilitative process forward, followed transition of the therapeutic focus forward for each phase of a therapeutic process. Such assay, response, control loops may be performed using a therapeutics followed by assay, followed by instrumentation of additional therapeutic levels until subsequent phases have been achieved, then, again, followed by instrumentation of therapy to traverse the next phase of a therapeutic process. Likewise, one therapeutic with multiple payloads sequence for one therapeutic rehabilitative process or one therapeutic with multiple payload sequences for multiple disease, conditions or statusus, all may be controlled by instrumentation or remote control of which therapeutic payload is release, when it is release and what level of such therapeutics payload is release. Remote activation factors might include energy, infrared or ultraviolet light, different frequencies and wavelengths, sound, thermodynamics, or conditions that can be changed such as postprandial status, activity level, or other interactivity.

Importantly, these represent a way to impose a ceiling and a floor for the effects of therapeutics as well as enable an emergency abatement mechanism for therapeutics to enhance quality of outcomes. Importantly, protein transduction therapy already has enabled very large 250 dalton or more biologically activity therapeutics to transit every cellular entity in physiology with the efficiency, or near efficiency of a water molecule. These present an opportunity to produce a holographic platform that transcends physiology encompassingly, resulting in promoting, escalating, or enabling transparent observability, as well as modulation of any physiological

factor or mechanism, pathology, pathology vector, or atypical developmental nuances, followed by implementing a therapeutic or rehabilitative process that is personalized down to individual molecules in physiology, individual cellular entities, structures, organs, tissues and individuals. These can even be instrument, monitored, reported, and interactively managed by automated capabilities and technologies.

Although the changes possible to therapeutics manufacturing include plug and play therapeutic modules and processes that personalized all the way to the protein level, such that focus on safety, instrumentation, and control can proceed as priorities in separate focus areas, these enable enhanced coverage of the different contexts of disease, injury, impairment and developmental impairment which have escaped economic justification, although there are now organizations focused on developing therapeutics for conditions that are unlikely to provide adequate return on investment and net present value typically, otherwise, included industry development and manufacturing decisions.

Information. Br J Clin Pharmacol. Volume 40. Number 2. Pages 135 to 140. 8th Month, 1995.

Information. BMC Pharmacol Toxicol. Volume 21. Number 1. Page 77. 11th Month, 16th Day, 2020.

Information. BMC Pharmacol Toxicol. Volume 21. Number 1. Page 77. 11th Month, 16th Day, 2020.

Information. Drug Metabolism and Disposition. Volume 33. Pages 1503 to 1512. 2005.

Information. Uniprot. P08684. Cytochrome P450 3A4.

Information. Blood. Volume 108. Issue 11. Page 2192. 11th Month, 16th Day, 2006.

The implications of methylene bridge sequestration of current may seem controversial. However, the exhibition of methylene bridge sequestration of current is plainly observable in CH₃ which constitutively integrates e⁻ as the extra e⁻ in in Hydride, H(2e⁻) (1p). However, although photons are known to cause emission of electrons when encountering matter, the literature does plainly differentiate such emission spectra from being caused by displacement of electrons by photons. The potentials of methylene bridge sequestration of current are clearly observable as polymerization potential and are clearly observable in methylene bridge cysteine once CH₃ has been removed, because this results in one of the most biologically destabilizing factor known to exist as an endogenously produced metabolite. Importantly, a particular research article analyzes the palladium complexes with methylene bridge diphosphines which is interesting for multiple reasons. Palladium is known to be among the most potent storage capabilities for energy, electrons or hydride, because its lattice expose a series of electron holes that extend deploy to its structure, resulting in remarkable disproportionate ability to receive and store energy compared to its structural density or size. The diphosphine's phosphines are joined to palladium by methylene bridges, in the study.

Phosphines are known to occur in space. Diphosphines have been ascertain in interstellar space. CH₂ has been ascertained in interstellar space. Diphosphines joined by CH₂ in interstellar space

clearly suggests sequestration of e^- in space without constitutive integration of hydride that includes its constitutive integration of additional e^- , such that direct integration of e^- from interstellar space, absent of matter as vacuums may be, implicating that light may be integrated from environment by methylene bridges when the encompassing aether is not constitutive of matter. Correlatively, the integration of e^- or eV^- is known to occur through RET in physiology in which e^- or eV^- is integrated to reconstitute NADH from NAD^+ . Most importantly, the compendium of research associated with this analysis clearly found experimental production of electrons from hydridic fields, photons and freed eV^- or current within a context of qubit function in quantum computing architecture and design. These suggest that light or photons have energy and that energy may possibly be translated by CH_2 or methylene bridges into polymerization potential, although a correlative and more simple explanation might be constitutive of or include enhanced energy of existing electrons produce by photons. Regardless, the translation of photons into structure is very likely represented by the function of methylene bridges which can, minimally, translate the energy conferred by photons into structural or polymerization potential.

Likewise, the literature observes phosphoric acid, phosphonic acid and pyrophosphoric acids as occurring in interstellar space with structure exhibiting that in which hydride has been integrated between the phosphate groups as oxonium. The popular literature observes oxygenated acids or oxyacids or oxoacids, all as having and acidic hydrogen integrated into an oxygen atom with the length or strength characteristics of this linkage being mitigate because such molecules include nonmetal hydrides. These suggest, again, that hydride is being integrated into the structure phosphate complexes in interstellar space.

Thus, where there is no matter, methylene bridges sequester e^- . In physiology, freeing of e^- results in excitation of environment and exhibition of fluorescent influence, all of which enable synthesis of ATP and integration of hydride between the phosphate groups of ATP as oxonium. Thus, derived from aether of the universes, excitation, eV^- , current, electrons or e^- integrated into hydrogen to produce hydride, are able to be sequestered by CH_2 and these can be translated into structure or polymerization potential or integrated into polymers.

Information. "Interstellar CH_2 ." *ApJ*. Volume 560. Number 866. 2001.

Information. "Interstellar CH_2 ." *Astronomy and Astrophysics*. Volume 271. Pages 276 to 281. 1993.

Information. "Alkylphosphinic Acids in the Interstellar Medium." *Science Advances*. Volume 5. Issue 8. 8th Month, 7th Day, 2019.

Information. *Nature Communications*. Volume 9. Article 3851. 2018.

Information. "Unsymmetrical Diphosphines." Volume 39. Number 13. Pages 2511 to 2525. 2020.

Information. "Photons and Electrons." *Optica*. Volume 7. Number 2. Page 154. 2020.

These analyses consider diverse manner of complexity, most particularly because complexity is an aspect of data science and the unobservable aspects of nature, biology, physiology and the universes, all require statistical, analytical or other nuances which levels of precision that may be variable. Lipids and phospholipids, for instance, move through phases of development as they become more than one lipid, begin to mimic structure, become structure, and then move from microstructure, to intermediate structure to superstructure, culminating biological structure and function. Fractal mathematics are important because fractal mathematics describe spatial aspects of geometry that occur in a nonlinear, noninteger way, which is more accurate depiction of biology than precise geometric calculations and analytics. A most useful example is presented in the literature seems to be the observation that Boltzmann transitions describe how microscopic views or interpretation of the same structure provide different conclusions than a macroscopic perspective in a way that is conceptually able to be understood while a mathematical interpretation is more similar to how measuring a geographical boundary on a map with 12 inch ruler provides one perspective of the length of such boundary compared to using the same ruler to measure the actual geographical boundary locally and physically. Fractals consider the spatial aspects of distance instead of only the distance between tangents at the beginning and end of the structure or stand used to measure such subject of an analysis.

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The compendium of research linked to this analysis present a similar, but less precisely analyzed context, by observing that numerical systems or systems of measure, are, for the aforementioned reason considered by fractals as well as other reason, only an estimate of any conclusion because at microscopic, macroscopic or varying perspective of the units used to measure or describe such context of analysis, all can provide different observations and result in different conclusions, even when these consider material, spatial, or angular aspects or characteristics. Numerical systems, for instance, are a consensus agreed upon sequential conceptual orders of symbols which represent observable characteristics of a factor, object, concept, material or context, while there are infinite numbers of more precise observations and infinite number of numbers in between every number in any numerical system, such that at a trillion times more microscopic or macroscopic resolution, there is a strong possibility of imprecision in any such context represented by any numerically described context.

Thus, the complexity described as the fractal dimension references the quantification of change in a conclusion about a measured characteristic or factor that is introduced by the comparative reference, system or processed used to observe and measure such measured characteristics of factor.

Most importantly, these suggest that systems applied in observation promote the conclusions which have already been ascertained, shape conclusions toward existing conclusions, and even cause outcomes interactively antecedent eras or instances of time as well as shape outcomes interactively in future instances of time, all toward the conclusions promoted and already existing for any system. Interactions between different instances of time have already been irrefutably presented in experiments in which unobserved outcomes in quantumly entangled relationships can be changed to confirm the outcomes promoted by an observational and

interactive with the intent of changing such outcomes an antecedent era or antecedent instance of time. These are important because analytical systems, data science, and even clinical analytics, all rely upon unobservable nuances that require technological, analytical, and presumptive contexts to be applied, often with the presumptive influences of events that have already occurred. It is very possible that the Human experience and Human health, behavior and span of being all may be being influenced by presumptive considerations that reflect conditions, possibilities and statistical characteristics which should long ago have been transcended by sometimes ordinary translation of the status quo, but certainly should have been transcended by the extraordinary achievement in technology, research, education, and development.

It is well known that systems have the ability of shaping Human health and behavior to exhibit characteristics and statistical nuance of the status quo, such that it is well known that migrating populations have been known to typically come to exhibit the same patterns in health and behavior as is exhibited in the place of migration, often occurring within 1 or 2 generations. Even genetics as factors in health and human behavior are now known to be the result of shaping influences of environment and systems. The possibilities and perhaps the expected foundational application of civilization is to suggest, support, and assure the possibility of continuous achievement of those outcomes regarding behavior, health, span of being, and innovation that represent the best humanity is to achieve as well as advocate among the universe in favor of humanity, continued advancement of the Human experience, and increasing achievement regarding span of healthy, stable, and productive span of being. Systems should use spooky action at a distance, along with manifest and latent systemic influences to promote exhibition of optimal Human behavior, health status, achievement and span of being. This observation is particularly relevant in context in which systems may be promoting less than optimal or less than beneficent merely through overly complex, intensive, and status quo representation in in system, processes and statistical information.

An interesting example is the consideration of sodium obtainment, which has obvious clinical floor for obtainment and clinical ceilings that can vary with health status. These both are relevant for choline obtainment nutritionally because the major or primary transporters for choline at the cellular level are coupled with sodium, thus, presenting sodium as an enhancer of choline absorption, although, importantly, choline obtained from extracellular, exogenous sources is quantumly distinct from choline produced de novo by the enzyme PEMT. Similarly, the fractions of phosphatidylcholine produced by cdp-choline pathway using recycled choline is quantumly distinct from the de novo synthesis of choline by PEMT through sequential attachment or integration of 3 CH₃ molecules from s-adenosyl methionine into the three possible integration locations within phosphatidylethanolamine, resulting in PMME, PDME and phosphatidylcholine, such that the phosphatidylcholine produced by PEMT is enriched in fatty acid versions that include DHA, EPA, omega-3, oleoylate, palmitate, extended length arachidonic acid, and ether linked insulating fatty acids, constituting a treasure trove of developmentally optimal and resolution phase eicosanoids and cytokines. One research article, at least, suggests that methylene bridge cysteine recycled into methionine and recycled in s-adenosyl methionine may be closed, exclusive fraction of these metabolites used by PEMT, although there has not, at this instance, been a conclusive and consensus determination in this

regard, However, the literature observes that activation of PEMT and adequate supply of phosphatidylethanolamine results in increased levels of methylene bridge cysteine and this increase is not correlated with adverse health status or any ascertained advancing nuance of pathology. Importantly, although no particular complexing of methylene bridge cysteine, methionine, or s-adenosyl methionine has been ascertained, such as ubiquitylation or sumoylation for instance, quantumly entangled particles, atoms and molecules might be reasonably able to exhibit either affinity or selectivity in pairing of PEMT with its substrate, while an interesting utility in this regard may be constituted by three sequential methylations by PEMT of phosphatidylethanolamine, resulting increasing affinity as the molecular structure changes from phosphatidylethanolamine, to phosphatidylmonomethylethanolamine, to phosphatidylmethylethanolamine to enriched phosphatidylcholine.

Every human outcome, every systemic outcome, and the prevailing themes in all geopolitical outcomes and interactions, have always and continue to be the patterns in biology, physiology and behavior presented here which are vindicating of humanity through movement of these nuances of biology, behavior, neurological basis of social behavior and potential for indefinite span of being, all to observable levels for translation into ever improving Human outcomes. Alas, the enduring legacy of the Human experience and the American experience in this context among others, seems to be that these homologues are not only the foundational nuances of the structure of an emerging and emerged nation, but that all of its outcomes are eluted in this context. The American experience, thus, among the Human experience, seems to have emerged upon a stage that has the universes as its audience, and every life, likewise, is advocated for by the very essence of such a Nation's structure. Correlatively, it is not suggested that the outcomes eluted in such context are perfect, or even have been intended to be perfect. Instead, it is observed, that Human priority requires open and transparent endeavor to achieve perfection when it comes to vital being. Limitations, impedance and inadequacy, in such endeavor and such regard, seem to be intended by the universes as mere waypoints in Human innovation, experience, excellence and achievement.