January 2019 - Mid-Month Bonus Newsletter

Thank you for subscribing to this newsletter from the Personalized Lifestyle Medicine Institute. Enjoy and share this information, which is for educational purposes only and is not intended to be a substitute for professional medical advice, diagnosis, or treatment. Always consult with a qualified healthcare professional when you are in need of advice regarding a medical condition.

In this issue: Phytonutrient of the Month: Berberine; Resource: SNPedia; Physical Activity Boosts Membrane Fluidity and Muscle Energy Dynamics; Spring 2019 Partner Event in Chicago - Registration is Now Open!

Phytonutrient of the Month: Berberine

Berberine is remarkable: we’ve long known that it was good to use in infections or liver troubles, but research has been unstoppable in demonstrating new benefits. Berberine is a bitter alkaloid possessing a brilliant yellow color, and plants containing berberine have been used for lending deep gold and bright yellow tints to fabrics and other materials. Plant sources of this versatile phytonutrient include Coptis, Berberis, Hydrastis, Mahonia, and Xanthorrhiza species, and Phellodendron amurense is an increasingly common commercial source; berberine is generally found in the roots or bark of these plants.

Among berberine’s recent research findings:
- In type 2 diabetics, it lowers blood sugar levels and improves insulin sensitivity and liver function, at least partly by acting upon the insulin receptor.
- It may counter central nervous system-specific oxidative stress and thereby help curtail neurodegenerative processes.
- Per meta-analysis, it increases HDL cholesterol while lowering triglycerides and LDL cholesterol.
- Per meta-analysis, it may be a useful adjunct in addressing non-alcoholic fatty liver disease, improving hepatic enzyme and blood lipid levels.
- It shows toxicity towards different cancer cell types while sparing normal cells.
- It can help regulate heart rhythm, support healthy function within blood vessels, and it shows several other cardioprotective effects.
- It possesses antimicrobial potential against a variety of bacteria, fungi, and protozoa, even inhibiting biofilm development associated with MRSA (methicillin-resistant Staph. aureus).
- It beneficially altered microbiome composition in an animal study, improving balance between immune system components implicated in some autoimmune
How can one phytonutrient do so much? Berberine interacts with a rich network of enzymes, cytokines, receptors, and even microRNAs (which play important roles in gene regulation), many of which are central to long-term immune balance, cellular aging, and how the body uses or stores energy. As an activator of the master energy-regulating enzyme AMPK (adenosine monophosphate kinase), it may help reduce mitochondrial oxidative stress and modify cells’ life cycles. This effect on AMPK also beneficially influences the inflammatory response, and would also be expected to encourage autophagy (the cellular ‘housekeeping’ program that clears out damaged organelles and encourages renewal) in normal cells under conditions of caloric restriction or intense physical activity.

Though berberine is not considered particularly toxic, it should not be used before or during pregnancy or breastfeeding; additionally, it can interact with and/or decrease the need for several types of drugs, and for these reasons it is recommendable that it be administered by a health care practitioner.

Resource: One 21st Century Guide to the Book of Life

The Age of Data has enabled the Age of Personalization, encouraging public sharing of information about genetic individuality and how wellness may be cultivated. One wiki-based online resource may come in handy for those trying to learn how to read and interpret the “book of life” written in our genes.

Started within a few years of the complete sequencing of the first human genome, SNPedia is a public database providing information on over 100,000 single-nucleotide polymorphisms (SNPs). Individual SNPs are referred to by rs numbers that indicate their specific location within the genome; for example, the well-known folate-related C-to-T substitution (C677T) in the MTHFR gene occurs at its rs1801133 locus. The SNPedia entry for this SNP informs us that it is especially common in the Hispanic American population (found in 48 percent) and that a single copy reduces efficiency of folate metabolism by about 35 percent while two copies reduce it by 80-90 percent.

The easiest way to use SNPedia is to enter search terms into the search box at the upper right corner of every page. It is relatively simple to use if you already know the rs number of the SNP you’re interested in, but it is also possible to search by:

- names of individual genes, like MTHFR, TET2, or CLOCK; this will bring up all SNPs along with related citations from databases of published research
- medical diagnosis, like deafness or GERD; this will bring up discussions of medically-related SNPs
- generic or brand names of drugs, like lithium, atorvastatin, or Prozac; this will bring up discussions of SNPs that can affect how rapidly one metabolizes these drugs

While this growing catalog of genetic variants is not entirely comprehensive, it represents an admirable compilation of data from myriad sources. Our distant ancestors had only one truly reliable way of sending information to the future about what their lives were like: our inherited genes. SNPedia is a useful open-source reference for accessing and understanding this valuable message.

Physical Activity Boosts Membrane Fluidity and Muscle Energy Dynamics

Phosphatidylcholine (PC) and phosphatidylethanolamine (PE) are cell membrane
components that strongly influence membrane fluidity and receptor functions; PC accounts for ~50% of membrane lipids while PE is usually about half that. A recent clinical trial shows that the ratio between these two phospholipids within skeletal muscle is modulated by physical activity and may impact glucose metabolism and mitochondrial formation. In men performing endurance and strength exercise, glucose and insulin levels improved and skeletal muscle mitochondrial area increased, reflected by greater expression of the gene coding for PGC-1 (PPAR-gamma coactivator-1), which regulates creation of mitochondria. Exercise elevated muscle levels of both phospholipids, but the increase in PE was double that of PC, resulting in a reduced PC:PE ratio; PC:PE ratio was found to negatively relate to a measure of body-wide insulin sensitivity. The study examined overweight dysglycemic as well as healthy men, and while positive results were found in both groups, benefits tended to be more pronounced in healthy men. This research emphasizes the importance of physical exertion in priming mitochondria to improve how cellular resources are used or stored—which in turn impacts cellular redox status and aging.

Read more: http://www.nature.com/articles/s41598-018-24976-x.pdf

SPRING 2019 PLMI PARTNER EVENT

Mastering the Implementation of Personalized Lifestyle Medicine
Synchronizing Metabolic Rhythms: A Critical Tool for Clinical Success

April 26-27, 2019

W Chicago - City Center

REGISTRATION IS NOW OPEN!

Click HERE to learn more about the program and speakers. Use this LINK to register.