

Summary: LFT Nutritional Health Attributes

Mary Esther Gilbert, MSc HN, BSc NSP ©11/18/2024

	Black Pepper	Japanese Knotweed	Milk Thistle	Pomegranate	Red Grapes	Rosemary Leaf	Siberian Larch Bark	Spirulina	Turmeric
Brain/Nervous System									
Neuromuscular, Nerve Disorders	x		x						
Brain Efficacy, Enhances Intellectual Development, Cognition, Prevents Memory Impairments, Improves Learning, Memory	x			x	x				x
Improves Brain Function, Helps Promote Brain-Derived-Neurotrophic Factor									x
Prevents Epilepsy	x								
Helps Modulate Nerve Signaling Pathways			x		x				
Relieves Headaches				x					
Neuroprotective, Anti-Neuroinflammatory				x	x	x	x		x
Protects Against Alzheimer's					x		x		x
Protects Against Cerebral Ischemia (Insufficient Blood Flow to Brain)					x				
Prevents Cataracts						x			
Helps Prevent Mental Fatigue						x			
Helps Reduce Lipid Peroxidation in Brain (antioxidant)						x			
Protects Against Toxic Metals						x			
Enhances Nervous System Functioning						x			
Supports Trauma to the Nervous System							x		
Helps Attenuate Excessive Stimulation of Nerve Cell Receptors From Stressors							x		
Effective in Preventing Shrinking of the Brain's Hippocampus Affecting Learning and Memory									x
Effective Against Multiple Sclerosis									x
Increases Alertness, Attention									x
Cardiovascular System									
Anti-atherosclerotic, Prevents Clogged Heart Vessels	x			x		x			x
Lowers Blood Lipids, Lipoproteins, Cholesterol, Triglycerides	x			x		x	x	x	
Protects Capillary and Blood Vessel Strength, Permeability			x						
Improves Blood Hemoglobin Levels, Reduces Risk for Anemia				x					
Anti-Platelet Properties (Preventing Abnormal Clotting)					x				
Inhibits Programmed Cell Death Under Injury Conditions					x				
Helps Prevent Ventricular Arrhythmias					x				
Improves Myocardial Blood Flow						x			
Helps Prevent Ischemia						x			

	Black Pepper	Japanese Knotweed	Milk Thistle	Pomegranate	Red Grapes	Rosemary Leaf	Siberian Larch Bark	Spirulina	Turmeric
Endocrine/Glandular/Hormonal System									
Antidepressant Properties, Helps Attenuate Depressive Behavior, Anti-Anxiety	x					x			x
Anti-Obesity				x					
Improves Insulin Sensitivity				x					
Used for Hemorrhoids									x
Integumentary System (Skin)									
Protects Skin Against Ultraviolet Radiation (UVA and UVB Light)			x		x				
Alleviates Eczema									x
Supports, Protects Skin Cell Structures, Helps Prevent Wrinkles			x		x				
Stabilizes Cell Membranes Against Toxic Chemical Entry			x					x	
Improves Skin Microbiome				x					
Counters Damage of ROS Causing Photodamage, Photoaging, Skin Cancers				x	x				
Helps Attenuate Skin Allergies						x			
Lymphatic System									
Metal Detoxification					x	x		x	
Used against the amatoxin released by amanita or deathcap mushrooms			x						
Immune System									
Ant-inflammatory Inhibits Free Radicals (ROS) Generated in the Body	x		x	x	x	x	x	x	x
Antipyretic – Reduces Fever				x					
Antioxidant – Anti-Free Radical	x			x	x	x	x	x	x
Bone Marrow Infection		x							
Chemopreventive					x				
Supports Body's Production of Antioxidant (SOD and Other Antioxidants)	x				x		x		
Arthritis	x								
Anti-Parasitic	x			x	x				x
Reduces Oxidative Stressors	x					x			
Anti-Mutagenic	x				x				x
Anticancer - Anti-tumor, Anti-proliferative, Anti-Mutagenic	x	x		x	x	x	x		x
Antiviral	x				x	x	x		x
Antibacterial		x		x	x		x	x	x
Antifungal					x				x
Destroys, Arrests Growth of Dental Bacteria, Anti-Cytotoxicity		x				x			
Used for Gingivitis									x
Immunomodulatory			x	x					
Anti-allergies, Prevents Release and Synthesis of Inflammatory Protein Responses in the Body			x				x		x
Astringent, Helps Reduce Bleeding, Aids in Wound Healing				x					
Protects Against DNA Damage, Cytotoxicity				x	x	x			x
Improves Levels of White Blood Cells (Immunity)						x		x	

Anti-Aging Benefits of LFT Botanicals

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	Black Pepper	Japanese Knotweed	Milk Thistle	Pomegranate	Red Grapes	Rosemary Leaf	Siberian Larch Bark	Spirulina	Turmeric
Brain, Nervous System									
Neuromuscular, Nerve Disorders	x								
Brain Efficacy, Enhances Intellectual Development, Cognition, Prevents Memory Impairments, Improves Learning, Memory	x			x					x
Brain Efficacy, Enhances Intellectual Development, Cognition, Prevents Memory Impairments, Improves Learning, Memory					x				
Helps Reduce Lipid Peroxidation in Brain (antioxidant)						x			
Neuroprotective, Anti-Neuroinflammatory							x		
Protects Against Alzheimer's							x		
Supports Trauma to the Nervous System							x		
Helps Attenuate Excessive Stimulation of Nerve Cell Receptors From Stressors							x		
Effective in Preventing Shrinking of the Brain's Hippocampus Affecting Learning and Memory									x
Increases Alertness, Attention									x
Cardiovascular System									
Anti-atherosclerotic, Prevents Clogged Heart Vessels	x			x		x			x
Protects Capillary and Blood Vessel Strength, Permeability			x						
Helps reduce lipid peroxidation in the heart (Antioxidant)						x	x		
Helps Remove Superoxide Free Radicals From Cardiac Tissue						x			
Improves Circulation, Reduces Risk of Heart Attack, Angina, or Stroke						x			x
Lowers Blood Lipids, Lipoproteins, Cholesterol, Triglycerides							x		
Decreases Cholesterol, Triglycerides - Increases Antioxidant Capability								x	
Digestive System									
Liver Detoxification, Hangovers, Reducing Fatty Liver	x		x	x		x			
Dyspepsia, Abdominal Pain, Stomach Pain, Peptic Ulcer						x			
Improves the Microbiota in the Gut, Prebiotic Activities				x				x	
Protects Against Liver Injuries, Reverses Toxic Effects						x			
Protects Against Tissue Destruction in the Pancreas							x		
Promotes Probiotic Activity								x	
Protects Liver Functioning									x
Used for Irritable Bowel									x
Endocrine/Glandular/Hormonal System									
Anti-Obesity				x					
Antidepressant Properties, Helps Attenuate Depressive Behavior, Anti-Anxiety						x			x
Immune System									
Antioxidant – Anti Free Radical: Supports Body's Production of Antioxidant (SOD and Other Antioxidants)	x			x	x		x		x
Anticancer - Anti-tumor, Anti-proliferative, Anti-Mutagenic	x	x		x	x	x	x		x

Anti-Aging Benefits of LFT Botanicals (Continued)

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	Black Pepper	Japanese Knotweed	Milk Thistle	Pomegranate	Red Grapes	Rosemary Leaf	Siberian Larch Bark	Spirulina	Turmeric
Anti-inflammatory - Inhibits Free Radicals (ROS) Generated in the Body	x		x	x	x	x	x	x	x
Antioxidant – Anti-Free Radical, Supports Body's Production of Antioxidant (SOD and Other Antioxidants)	x				x	x	x	x	x
Reduces Oxidative Stressors	x					x			
Chelates Toxic Metals (Such as Lead), Detoxification		x			x				
Immunomodulatory			x	x	x				
Anti-allergies, Prevents Release and Synthesis of Inflammatory Protein Responses in the Body			x				x		x
Stabilizes Cell Membranes Against Toxic Chemical Entry			x					x	
Used against the amatoxin released by amanita or deathcap mushrooms			x						
Protects Against DNA Damage, Cytotoxicity				x	x	x			x
Anti-inflammatory				x					
Helps Reduce Bleeding, Aids in Wound Healing				x					
Protects and Helps Maintain Telomere Length in DNA					x				x
Modulates Inflammatory Proteins (Cytokine Signaling)					x				
Attenuates Mobilization of Leucocytes (A Type of White Blood Cell)					x				
Anti-Aging - Protects and Helps Maintain Telomere Length in DNA					x	x			
Inhibits Programmed Cell Death Under Injury Conditions					x				
Metal Detoxification, Protects Against Toxic Metals Toxicity					x	x		x	
Chemopreventive (Lowers Cancer Risk)					x				
Improves Levels of White Blood Cells (Immunity)						x	x		
Helps Heal Wounds						x			x
Protects Against Toxic Metal Reproductive Harm Toxic Metal Chelation, Detoxification						x			
Aids in Autoimmune Disorders							x		
Protects Against Toxic Metal Reproductive Harm Toxic Metal Chelation, Detoxification							x		
Immunostimulatory – Mobilizes Natural Killer Immune Cells							x		
Aids Immune Cells in Neutralizing Free Radicals, Protects the DNA									x
Aids in Cellular Repair, Replication, Maintaining Gene Quality, Anti-Aging									x
Anti-Leukemia – Prevents Its Development									x
Integumentary System (Skin)									
Protects Skin Against Ultraviolet Radiation (UVA and UVB Light)			x		x				
Supports, Protects Skin Cell Structures, Collagen, Elastin, Hyaluronic Acid, Helps Prevent Wrinkles					x				
Counters Damage of ROS Causing Photodamage, Photoaging, Skin Cancers				x	x				
Anti-Aging			x	x	x	x			x
Improves Skin Microbiome				x					
Reproductive System									
Enhances Libido				x					
Purifies Reproductive Organs									x
Respiratory System									
Protects Lungs Against Respiratory Infections		x					x		x

Phytonutrients/Phytochemicals in LFT

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Black Pepper (*Piper nigrum*)

Phytochemicals: alkaloids piperine, chavicine, piperanine, piperettine, piperolein, piperylin, pipericine; capsaicin; essential oils, oleoresins.

Japanese Knotweed (*Reynoutria japonica*)

Phytochemicals: Resveratrol, glycosides; Anthraquinones: emodin, citreorosein, fallacinol, physcion; flavonoids: rutin, apigenin, quercetin, quercitrin, isoquercetrin, hyperoside, reynoutrin, and kaempferol; Stilbenes: resveratrol, emodin, and polydatin; Coumarins, lignans, essential oils; polyphenols, sterol terpenes; tannins; flavonoid glucosides, phenyl alcohols; sterols; essential oils; amino acids.

Milk Thistle (Seed) (*Silybum marianum*)

Phytochemicals: silybin (silybinin), apigenin, betaine, silybonol, and polyphenol flavonolignans flavonolignan SB, flavonolignans isosilybin, silydianin, silychristin, 2,3-dehydrosilybin, and the flavonoid taxifolin.

Pomegranate Fruit (Juice and Pulp)

Phytochemicals: Ellagitannins, gallotannins, and derivatives; flavonoids; lignans; triterpenoids, phytosterols; alkaloids, indolamines; fatty acids, lipids; organic acids, phenolic acids and their many derivatives.

Red Grape (*Vitis vinifera*)

Phytochemicals: polyphenols, phytoalexin resveratrol (3,5,4'-trihydroxystilbene), rutin, flavonoids quercetin, dihydroquercetin, proanthocyanins and anthocyanins.

Rosemary (Leaf) (*Rosmarinus officinalis* L.)

Phytochemicals: rosmarinic acid, derivatives of eugenol, luteolin, and caffeic acid, camphor, carnosol, carnosol acid, chlorogenic acid, alpha-pinene, eucalyptol, monomeric acid, oleanolic acid, rosmarinic acid, rosmadial, rosmanol, rosmaquinones A and B, secohinokio, and ursolic acid, carnosic acid and carnosol, catechins, coumarins, and cinnamic acid, quercetin, luteolin, kaempferol, and hydrocafeic acid.

Siberian Larch (Bark) (*Larix sibirica*)

Phytochemicals: flavones, catechins, flavonoids dihydroquercetin, dihydrokaempferol, quercetin, kaempferol, secoisolariciresinol, (+)-catechin, naringenin, resveratrol, and eriodictyol, carotene, lignin, glycosides, organic acids, anthocyanins, flavonoids, gum, fats, phytosterols, mannitol, glucose, arabinogalactan polysaccharide, and resins rosin, phytoncides, and dihydroquercetin, resin essential oils pinene, borneol, bornyl acetate, alpha-pinene, dipentene, sylvestrene, and alpha-sylvic acid, tannins, coniferin glycoside, gum, catechins, flavonols, anthocyanins, lignans (-)-secoisolariciresinol and (+)-isolariciresinol, flavonoid (+)-dihydroquercetin.

Spirulina (*Arthrospira platensis*)

Phytochemicals: phenolics, phycocyanins, and polysaccharides, phycobiliprotein C-phycocyanin, flavonoids, allophycocyanins, polysaccharides.

Turmeric Root (*Curcuma longa*)

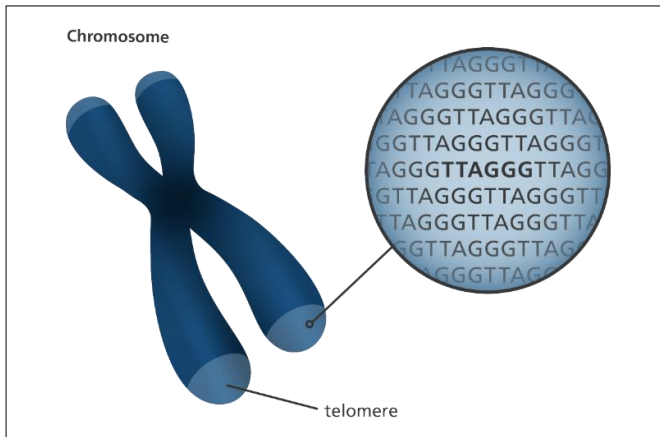
Phytochemicals: curcuminoids: curcumin (diferuloylmethane), demethoxycurcumin, and bisdemethoxycurcumin; essential oils termerone, curlone, curumene, cineole, and *p-cymene*; sugars, proteins, resins.

Telomeres, Telomerase

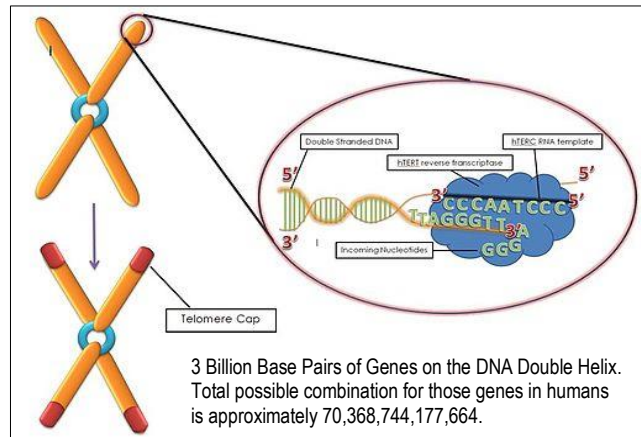
Preventing Degeneration and Slowing Down Aging

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Telomeres, the specific DNA proteins residing at both ends of each chromosome, protect the genome from damage and keep them from fusing with other DNA molecules inside the cell, therefore preventing the loss of genetic information.



Genome Research Limited 2024



Developmental Biology 2012 – Wikimedia



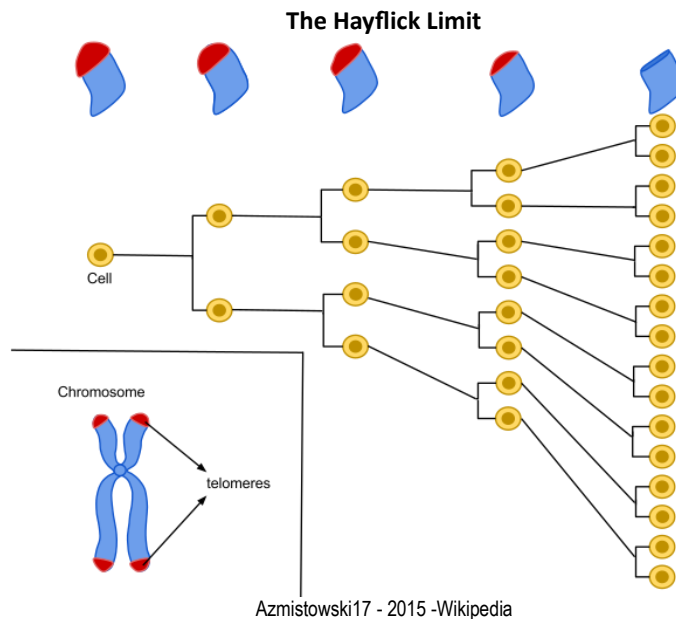
Your Genome 2024

The enzyme **telomerase** is key to maintaining proper lengths of the telomeres, which under oxidative stress conditions, undergo a shortening or loss of genomic information during the cell replication process, leading to senescence and eventual apoptosis or aged cell destruction. **Grape helps maintain telomere length.**

Telomere shortening is the result of a cascade of oxidative events that damage cells and impair their ability to replicate, repair and regenerate themselves, leading to cell senescence, cell death, and premature aging of an individual.

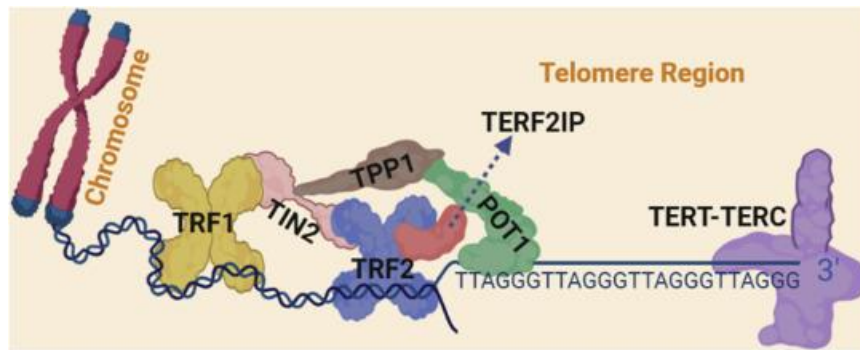
Throughout life, as the body's cells perpetually continue divide or replicate and replace aged cells (senescence), the protective telomeres or end-caps at the end of each chromosome gradually shorten.

In each cell DNA replication process (which occurs about 40-60 times), a small amount of gene sequences at the ends of the chromosomal DNA are lost each time a cell divides, and when this duplication process reaches its replicative potential limit, also known as the "**Hayflick limit**", the cell senesces or can no longer function.



Rosemary helps mediate TERF-1, the telomere suppressive protein. The essential oils in the rosemary leaf have been shown to have telomere-protective effects through the mediation of the TERF-1 telomere-suppressive protein.

- The mediation of the TERF-1 telomere-suppressive protein is critical when cells become cancerous and begin to proliferate.
- A cell's senescence can be prevented through actions of the telomerase protein/RNA complex that allows chromosome telomere ends to be replicated *without losing the correct genetic sequences*, thereby maintaining longer telomere length.
- Stem cells responsible for replacing cells that necessarily must express telomerase are not imposed on by the replicative limit, however.
- By contrast and in maintaining necessary balance and accurate gene transcriptions during cell replication, **TERF-1 as part of the telomere protein complex, is critical for maintaining telomere length in healthy cells while inhibiting the enzyme telomerase that attenuates or controls the elongation of the telomere chromosome ends.**



Abishai Dominic - Redox Biology 2020

- Telomerase enzyme activation may be an indication of cancer as tumor cells reveal their limitless replicative potential when the telomeres in those gene expressions begin to replicate and elongate.
- The TERF-1 protein can act to inhibit telomere lengthening by blocking the cell binding sites for telomerase; however as more binding sites for TERF-1 are formed due to the action of the telomerase enzyme, a threshold is reached where telomerase can no longer be effective.
- As telomeres shorten eventually, that threshold cannot be met; therefore, telomerase can resume its binding and extending of the telomere chromosome ends to maintain telomere length equilibrium.
- Other pathways of telomere erosion are prolonged oxidative stress through inflammation or the presence of reactive oxygen species (ROS) generated by the body's production of stress chemicals, which directly damage DNA, including the telomeric regions, causing telomere shortening.

Rosemary leaf oils have been shown in live cell cultures to counter the telomere-shortening effects from exposure to or presence of the free radical hydrogen peroxide, which reduced the telomere specific signal, yet the oils increased and restored the size of telomeres by 60-80% compared to the untreated control cells.

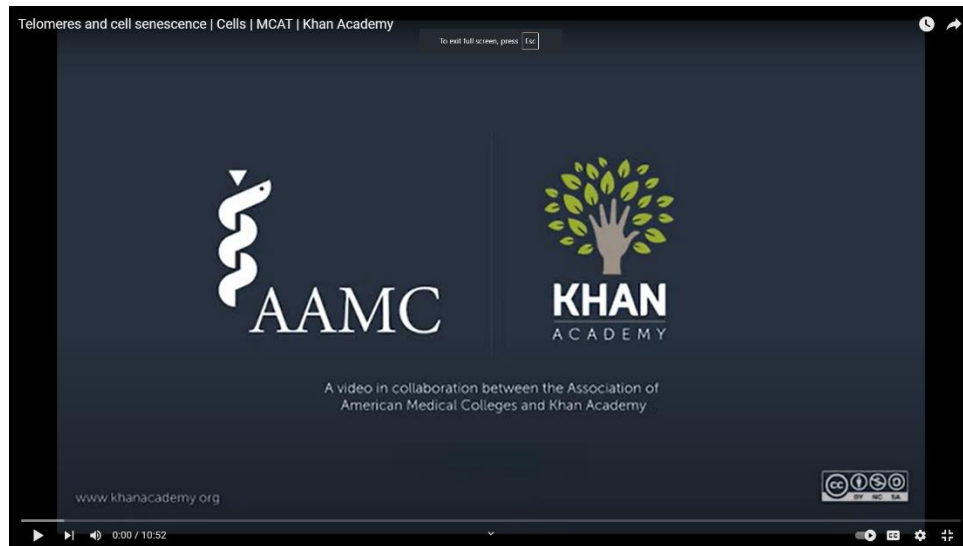
Administering subtoxic doses of *Rosmarinus officinalis* has been confirmed in many research findings to increase the length of telomeres while protecting cells against losing telomeric DNA due to oxidative stress.

- The antioxidants in rosemary leaf are able to absorb or neutralize ROS directly even as the oils do not induce telomerase production.
- The telomere-regulating protein TERF-1 is downregulated in the presence of rosemary leaf oils which allows telomere length to be maintained without increasing telomerase expression.
- Research suggests that *Rosmarinus officinalis* oils can maintain telomere length, while preventing cellular senescence "without cancer risk" (Plant, 2016).

Turmeric

- Anti-tumor effects of curcumin in turmeric have focused on how it binds to cell surface membranes and enters the cytoplasm to perform apoptotic and down-regulating actions that result in higher cytotoxicity in glioblastoma and medulloblastoma cancer cells trying to activate the telomerase enzyme and lengthen their telomeres.
- Curcumin was found to inhibit the telomerase activity that leads to telomere shortening; this inhibitory effect indicates its use in adjuvant cancer therapy in suppressing secondary tumor formation (Khaw, 2013).

Telomeres



KanAcademyMedicine | <https://youtu.be/R5YiO6rKr-w?si=C1yXjskyYdk8VsSj>
Telomeres and cell senescence | Cells | MCAT | Khan Academy

Complementing LFT With Other Drops

HRT, PFT – Fat, Cholesterol, and Glucose/Sugar Metabolism

HRT, ALT – For Cardiovascular, Circulatory Health

AIR, ALT – For Respiratory Health

AIR, MLS – For Biochemical Balance, Homeostasis

GTS – For Antioxidants, Energy

ICE – For Digestive Health

BTY – For Protecting Skin, Skin Cell Structures, Anti-Aging

BRN – For Protecting the Nervous System

PWR Apricot, PWR Lemon – For Optimal Reproductive System, Libido

GRW – For Immune Health

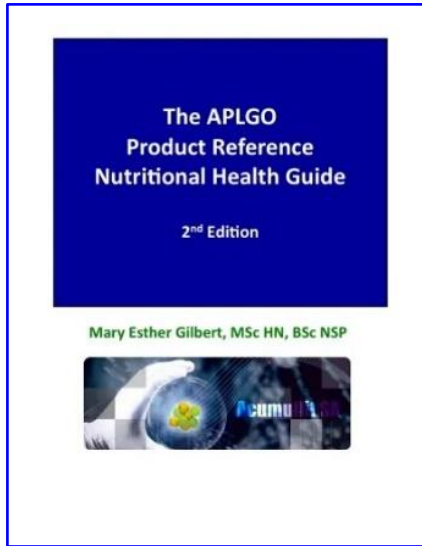
HPY, RLX – For Elevating Mood, Reducing, Handling Stress

HPR, MLS – For Cleansing, Purifying Toxins (Reducing Stress Reactions From Toxicity)

SLD, STP – For Managing Pain, Inflammation

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