Glossary

Acid ─ Traditionally, considered any chemical compound that, when dissolved in water, gives a solution with a pH less than 7.0.

Advanced Glycation Endproducts (AGE) ─ A group of molecules ingested or formed inside the body when sugars combine with proteins, lipids, and nucleic acids. AGEs are often formed by cooking.

Alkaline ─ Any chemical compound that when dissolved in water gives a pH above 7.0.

Apoptosis – One of the two mechanisms by which cell death occurs (the other being the pathological process of necrosis). Apoptosis is the mechanism responsible for the physiological deletion of cells and appears to be intrinsically programmed. This mode of cell death serves as a balance to mitosis in regulating the size of animal tissues and in mediating pathologic processes associated with tumor growth.

Arterial intima-media thickness ─ The thickness of the inner and middle layers of arteries, in particular of the carotid artery in the neck. Thickening of the arterial intima-media is a marker for atherosclerosis and is used to predict coronary artery disease.

Atherosclerosis ─ A condition in which fatty material collects along the walls of arteries: this plaque thickens, hardens, and may eventually block the arteries. It is one of several types of arteriosclerosis.

Baseline ─ Used on *the CR Way* to refer to the fasting level of glucose as well as other biomarkers ─ where you start: The baseline serves as reference point to gauge future test results.

Bax protein – Partner of Bcl-2 (the B-cell leukemia/lymphoma-2 genes), blocks apoptosis in normal cells, and is associated with (follicular) lymphoma when over-expressed. The ratio of Bcl-2 to Bax determines cell survival or death following an apoptotic stimulus.

Biomarkers ─ Cellular or molecular indicators of exposure, disease, or susceptibility to disease, biological changes that characterize the aging process – measurable through lab tests

BMI – Body Mass Index: Weight in kilograms divided by the square of height in meters, showing the relationship of a person's weight to height. It is commonly used to classify obesity, overweight, and underweight in adults.

Brain Derived Neurotrophic Factor or BDNF ─ A regulator of neuronal growth, survival, and function (during development and in the adult brain)

Bran – See Grain

C-Reactive Protein – A protein in blood plasma that circulates in increased amounts during inflammation and after tissue damage.

Calorie – A unit of food energy. In nutrition terms, the word *calorie* is used instead of the more precise scientific term, *kilocalorie*, which represents the amount of energy required to raise the temperature of a gram of water one degree centigrade at sea level.

Carbohydrate ─ One of the three main nutrients (macronutrients) in food – includes sugars, starches, celluloses, and gums that are used as sources of energy by the body.

Cancer ─ Any malignant growth or tumor caused by abnormal and uncontrolled cell division; it may spread (metastasize) to other parts of the body through the lymphatic system or the blood stream.

Carcinogen ─ A substance that gives rise to malignant new growth (tumors) made up of epithelial cells tending to infiltrate the surrounding tissues and give rise to metastases ─ *Carcinogen* is widely used in the more general sense as any substance that causes cancer. In this sense, carcinogens reach us through air, water, and food. Careful selection of pure water, whole foods from organic sources, filters, and enforced clean-air and clean-water regulations reduce our exposure.

Carotid artery ─ Blood vessel that supplies the head and neck with oxygenated blood

Cell signaling ─ Communication between cells: any of several ways in which living cells of an organism communicate with one another – whether by direct contact between cells or by means of chemical signals carried by neurotransmitter substances, and hormones.

Centering Meditation ─ A relaxing method of contemplation that replaces the thoughts that usually occupy the mind with a single meaningful word or phrase

Cephalic phase insulin release ─ Insulin production thought to be provoked by the sight, smell, and taste of food (before any nutrient is absorbed)

Cerebral Cortex – The command center of the brain, the locus of higher order functions like language and information processing: the **prefrontal cortex**, affected by "loving kindness" meditation, is involved in problem solving, emotion and complex thought.

Cholesterol ─ A soft waxy substance manufactured by the liver and other organs and consumed as animal fat. Cholesterol is used in the manufacture of hormones, bile acid, and vitamin D. It is present in all parts of the body, including the nervous system, muscle, skin, liver, intestines, and heart.

Cortisol ─ Often referred to as the "stress hormone" as it is involved in the response to stress – it increases blood pressure and blood sugar levels and has an immunosuppressive action.

Daily Limited Fasting ─ Daily fasting for a period of time**,** usually overnight

Diastole ─ The part of the heart cycle when the heart muscle (myocardium) relaxes and expands: during diastole blood fills the heart chambers. **Diastolic blood pressure** is measurement of the pressure on the walls of blood vessels when the heart is at rest. It is the second of the two blood pressure numbers.

DNA ─ Deoxyribonucleic acid: Molecules inside the cell's nucleus that contain the genetic instructions for formation and function of an organism. DNA carries the hereditary information that is passed on from one generation to the next.

DHA ─ DocosaHexaenoic Acid: An omega-3 fatty acid that belongs to the class of nutrients called essential fatty acids. It is found in fish oils of herring, mackerel, salmon, sardines. It is also found in human breast milk.

DHEA ─ Dehydroepiandrosterone is an important natural steroid produced by the adrenal glands, which are found atop the human kidneys. It is also produced in small quantities in the testis and the ovary. DHEA can be converted to several sex hormones, both male and female.

EFAs – Essential Fatty Acids: See Omega fatty acids

Enzyme – A protein (or protein-based molecule) that speeds up a chemical reaction in a living organism

EPA ─ EicosaPentaenoic Acid: An omega 3 fatty acid that belongs to the class of nutrients known as essential fatty acids. It is found in fish oils of cod liver, herring, mackerel, salmon, sardines. It is also found in human breast milk.

Epinephrine ─ A hormone secreted by the adrenal gland that is released into the bloodstream in response to physical or mental stress, as from fear or injury: it initiates many bodily responses, including the stimulation of heart action and an increase in blood pressure, metabolic rate, and blood glucose concentration. Also called *adrenaline*.

Estrogen(s) ─ The female hormones produced primarily by the ovaries. These steroid compounds induce menstruation and stimulate the development of secondary sexual characteristics in women. Estrogen is important for the maintenance of normal brain function and development of nerve cells. Small amounts of estrogen are also produced in men by the testes.

EVO – Extra Virgin Olive Oil ─ This is the purest form available from the processing of olive oil. Choosing organic EVO provides an additional level of purity.

Fat ─ See also Omega Fatty Acids
One of the three main nutrients (macronutrients) in food – this type of caloric energy is essential for a variety of body functions including organ protection, hormone balances, and as a long-lasting fuel source for low-intensity exercise. Dietary fats are classified as saturated (animal flesh, butter, margarine, processed and fried foods) and unsaturated (vegetable oils). Unsaturated fats are the preferred food for health reasons.

Saturated fat is solid at room temperature. Fats in foods are combinations of monounsaturated, polyunsaturated, and saturated fatty acids. Saturated fat is found in high-fat dairy products (like cheese, whole milk, cream, butter, and regular ice cream), fatty fresh and processed meats, the skin and fat of chicken and turkey, lard, palm oil, and coconut oil. They have the same number of calories as other types of fat, and may contribute to weight gain if eaten in excess. Eating a diet high in saturated fat also raises blood cholesterol and risk of heart disease. Structurally, the molecules hold all the hydrogen atoms possible.

Unsaturated fat is liquid at room temperature. Vegetable oils are unsaturated fats. Unsaturated fats include polyunsaturated fats, and monounsaturated fats. They include most nuts, olives, avocados, and fatty fish, like salmon. The molecules could hold more hydrogen because some of the bonds are double. Every double bond could hold another hydrogen atom if it opened up to give another single bond.

Monounsaturated fat is found in canola oil, olives and olive oil, nuts, seeds, and avocados. Eating food that has more monounsaturated fat instead of saturated fat may help lower cholesterol and reduce heart disease risk. However, it has the same number of calories as other types of fat, and may still contribute to weight gain if eaten in excess. It is monounsaturated because it has one double bond and thus one fewer hydrogen atoms than it could hold.

Polyunsaturated fat, if highly unsaturated, is liquid at room temperature. Polyunsaturated fats are found in greatest amounts in corn, soybean, and safflower oils, and many types of nuts. They have the same number of calories as other types of fat, and may still contribute to weight gain if eaten in excess. It is polyunsaturated because it has more than one double bond and thus holds fewer hydrogen atoms than it could.

Fiber ─ Parts of fruits and vegetables that cannot be digested, e.g., cellulose ─ also called bulk or roughage. Fiber, both soluble and insoluble, is an important component of a healthful diet and may play a role in preventing cancer and heart disease.

FOXOs – FOXO family of Forkhead transcription factors, a family of proteins that function as sensors of the insulin-signaling pathway and as regulators of longevity. They function in two distinct ways, one in the nucleus of the cell and one outside the nucleus in the cytoplasm.

Free radicals ─ Highly reactive molecules capable of causing tissue damage. Free radicals are common by-products of normal chemical reactions occurring in cells. The body has several mechanisms to deactivate free radicals. (Also see Reactive Oxygen Molecules.)

Fructose ─ A type of sugar found in many fruits and vegetables and in honey

Functional food ─ Food or food ingredient that has been shown to affect specific functions or systems in the body ─ functional foods play an important role in disease prevention.

Gene ─ The portion of DNA that directs the synthesis of amino acids that form proteins with highly specific functions.

Germ – See Grain

Ghrelin (Ghr) ─ The hunger hormone, produced by epithelial cells of the stomach – appears to be a stimulant for appetite and feeding. It is also a strong stimulant of growth hormone secretion and has important direct cardiovascular effects. In addition, ghrelin has potent independent vasodilator properties.

Glucometer ─ A small, portable machine, used to check blood glucose levels.

Gluconeogenesis ─ The formation of glucose from nutrients that are not themselves carbohydrates, as from amino acids, lactate, and fats.

Glucose – A simple sugar that is the body's main source of energy; Glucose is obtained through the breakdown of food in the digestive system.

Glucose transporters – proteins that facilitate diffusion of glucose across cell membranes. Glucose enters cells either by facilitated diffusion or, in the intestine and kidney, by secondary transport by sodium. Glucose transporters are a protein family. Eight glucose transporters have been identified, studied, and characterized: GLUT 1- 8.

Glycemic Index (GI) ─ A system that ranks carbohydrates according to their effect on blood glucose levels.

Glycemic Load (GL) ─ The total amount of glucose delivered by the meal. To calculate the glycemic load the GI of the food can be multiplied by the number of grams of available (total carbohydrate minus the fiber) carbohydrate and divided by 100.

Grain: bran, endosperm, and germ ─ Grain is composed of three layers. The **bran** is the fibrous outer layer that contains most of the grain's minerals. The **endosperm** is the middle layer, comprising about 85% of a whole grain by weight. It contains mostly complex carbohydrates, along with small amounts of B vitamins. The **germ** is the smallest of the three components. It is a rich source of trace minerals, unsaturated fats, B vitamins, vitamin E, antioxidants, and phytonutrients. Whole grain has all three layers to contribute to the food's nutrition. Some processing removes the bran and other processing also removes the germ.

Growth Hormone (GH) ─ A hormone, made in the anterior pituitary gland, that stimulates tissue and skeletal growth.

Heat Shock Proteins – Molecular chaperones for protein molecules: usually located in the cytoplasm, protein chaperones play an important role in protein folding and assisting in the establishment of proper protein conformation (shape) and prevention of unwanted protein aggregation. Heat Shock Proteins are active at elevated temperatures.
By helping to stabilize partially unfolded proteins, HSPs aid in transporting proteins across membranes within the cell. Calorie restriction increases levels of heat shock proteins. (Yu ZF, Mattson MP. *J Neurosci Res*. 1999;57:830–839. PMID: 10467254)

Hormone ─ A chemical substance involved in the regulation and coordination of cellular and bodily functions.

Hormesis ─ The stimulating or beneficial effect of small doses of a toxic substance or other biological stress, such as calorie restriction, that at higher doses has an inhibitory or adverse effect. Hormesis has been found in a wide variety of life forms ─ including human beings.

Hulled and Hulless Barley ─ Hulled barley has been processed so minimally to remove the outer chaff that it is still considered a whole grain. Hulless barley is a different variety that grows without a hull, it needs no processing. Both increase the texture of any dish they are served in and provide both fiber and a delightfully low GI.

Hypoglycemia ─ Low blood sugar: "mild" hypoglycemia is any level that's 10-20 mg/dl below target. As it drops lower, it's progressively more "severe," and can, if left uncorrected, become the condition known as neuroglycopenia, which means "too little glucose in the brain"

Inflammation ─ The nonspecific immune response that occurs in reaction to any type of bodily injury: it is the same response whether the injuring agent is a pathogenic organism, foreign body, reduced blood flow, physical trauma, ionizing radiation, electrical energy, or extremes of temperature. The hallmarks of inflammation are pain, redness, swelling, heat, and often loss of function. The reactions produced during inflammation and repair may be harmful, e.g. hypersensitivity reactions and the processes that lead to rheumatoid arthritis.

IGF-I – Insulin-like growth factor-I: A protein hormone similar in molecular structure to insulin, it has important growth promoting and metabolic effects and is expressed in virtually every tissue of the body. Liver-derived IGF-I is important for carbohydrate- and lipid-metabolism and for the regulation of Growth Hormone secretion.

I**nsulin** – A hormone secreted by the pancreas that plays a major role in the regulation of glucose metabolism. In addition, insulin regulates FOXOs and NF-Kb. Also, insulin and IGF-1 attenuate SIRT1 induction, according to Cohen HY, Howitz KT, Sinclair DA, *et al*, *Science*. 2004, PMID: 15205477.

Ketone bodies ─ Any of three compounds that are produced as by-products when fatty acids are broken down for energy, they are used as a source of energy in the heart and brain. In the brain, they are a vital source during fasting. The three types of ketone bodies are acetoacetate, beta-hydroxybutyrate and acetone.

Kinase, alternatively known as a **phosphotransferase** – Type of enzyme that transfers phosphate groups from high-energy donor molecules, such as ATP, to specific target molecules (substrates); the process is termed *phosphorylation* (An enzyme that *removes* phosphate groups from targets is known as a phosphatase)

Ku70 – In addition to its previously recognized DNA repair activity in the nucleus, the enzyme Ku70 has a cell protective function in the cytosol that controls the localization of Bax. Adapted from Sawada M, Nat Cell Biol. 2003, PMID: 12652308

Lactose ─ Sugar found in milk

Lipid Peroxides – Peroxides produced in the presence of a free radical by the oxidation of unsaturated fatty acids in the cell in the presence of molecular oxygen. The formation of lipid peroxides results in the destruction of the original lipid, leading to the loss of integrity of the membranes. They therefore cause a variety of toxic effects in vivo, and their formation has been considered a pathological process. New research suggests that lipid peroxide formation may have beneficial actions.

Lymphatic system – A complex network of organs, nodes, ducts, tissues, capillaries, and vessels that produce and transport lymph fluid from tissues to the circulatory system.
The lymphatic system has three interrelated functions:
(1) Removal of excess fluids from body tissues
(2) Absorption of fatty acids and subsequent transport of fat, to the circulatory system
(3) Production of immune cells (such as lymphocytes)

Meditation ─ Mental practice that brings about calmness and physical relaxation by suspending the stream of thoughts that normally occupy the mind

Metabolism ─ All the chemical changes that take place in living organisms: these changes include both production and breakdown of body constituents. More narrowly –the physical and chemical changes that take place in a given chemical substance within an organism. Metabolism includes the uptake and distribution within the body of chemical compounds, the changes (biotransformations) undergone by these substances, and the elimination of the compounds and their metabolites.

Mitochondria ─ Distinct bodies within cells that generate the power for the cells' chemical reaction**s**

Monounsaturated fatty acids ─ Fatty acids with one double-bonded carbon in the molecule: monounsaturated fats are found in many foods such as olive oil, peanuts, and avocadoes.

NAD+/NADH – Nicotinamide adenine dinucleotide (NAD+), a coenzyme derived from the B vitamin niacin. NAD is found widely in nature and is involved in numerous enzymatic reactions in which it serves as an electron carrier by being alternately oxidized (**NAD+)** and reduced (**NADH**). Essential for activation of SIRT1

NF-kappa B – Ubiquitous, inducible factor in the cell nucleus (nuclear transcriptional activator) that binds to enhancer elements in many different cell types and is activated by pathogenic stimuli. The NF-kappa B complex is (a heterodimer) composed of two DNA-binding subunits: NF-kappa B1 and RelA. They are involved in the control of a large number of normal cellular and organismal processes ─ such as immune and inflammatory responses, developmental processes, cellular growth, and apoptosis. In addition, they are persistently active in a number of disease states, including cancer, arthritis, chronic inflammation, asthma, neurodegenerative diseases, and heart disease. Downregulated by SIRT1.

Neuron ─ Unique type of cell found in the brain and nervous system that is specialized to receive and transmit signals.

Neurotransmitters ─ Chemicals that facilitate communication signal transmission between nerve cells, and are thought to play an important role in a person's feelings, emotions, actions and behavior

Nitric oxide ─ In the body, nitric oxide is involved in oxygen transport to the tissues, the transmission of nerve impulses, and other physiological activities. The endothelium (inner lining) of blood vessels uses nitric oxide to signal the surrounding smooth muscle to relax, thus dilating the artery and increasing blood flow. Nitric oxide is also generated by macrophages and neutrophils as part of the human immune response. Nitric oxide is toxic to bacteria and other human pathogens.

Nutrients ─ Compounds in foods that provide the nourishment that is essential for life: nutrients include carbohydrates, proteins, fats, vitamins, minerals, and phytonutrients.

Nutrient-dense ─ Descriptive of a food that has a high amount of nutrients per calorie

Ortholog ─ A gene with similar function to a gene in an evolutionarily related species

Orthologous ─ Describes a gene that has evolved from an ancestral gene

Oxidation ─ The process of a chemical combination with oxygen: on the cellular level, oxidative reactions are the source of energy, but free radicals and other oxidative residue can damage cellular components, such as membranes, and interfere with cells' regulatory systems. (See also Reactive Oxygen Molecules)

Omega fatty acids ─ Known as essential fatty acids: they are essential to human health but cannot be manufactured by the body and must be obtained from food.

Omega-3 fatty acids are found in nuts, seeds, fish oils of herring, mackerel, salmon, sardines as well as human breast milk. Omega-3 fatty acids include

- α-linolenic acid (**ALA**),
- eicosapentaenoic acid (**EPA**)
- docosahexaenoic acid (**DHA**).

Omega-6 fatty acids

Omega -6 fatty acids are obtained in the diet from nuts, seeds, meat, eggs, and plants.

Omega 6 fatty acids include

- linoleic acid (LA)
- gamma-linolenic acid (GLA)
- arachidonic acid (AA).

Oncogene ─ A gene that contributes to the production of a cancer, oncogenes are generally mutated forms of normal cellular genes (proto-oncogenes). It is a gene capable, when activated, of transforming a cell. Oncogenes are found in the oncogenically activated state in retroviruses and transformed cells and in their normal non-oncogenically activated state in non-transformed cells in which they are called proto-oncogenes.

Oncogenic ─ Giving rise to either benign or malignant tumors or causing tumor formation; said especially of tumor-inducing viruses.

Osteoporosis ─ Literally, porous bone, abnormally reduced bone mass (density), which predisposes a person to fractures after slight trauma. As weight is lost, the bones tend to lose density, increasing the likelihood of osteoporosis. Food selection, exercise, and Daily Limited Fasting can counteract the effect.

p53 – Tumor suppressor gene that mediates apoptosis and cell cycle arrest. Downregulated by SIRT1.

pH ─ A measure of the acidity or alkalinity of a solution, a pH of less than seven is considered acid while a basic (alkaline) solution has a pH greater than seven.

Phytochemical ─ Plant substances known to have beneficial health effects, phytochemicals are not essential to life, but they do enhance health and are considered micronutrients.

Plaque ─ Buildup of fatty deposits within the wall of a blood vessel

Plasma ─ Colorless, watery fluid of blood and lymph containing no cells and in which red blood cells, white blood cells, and platelets are suspended

Platelets – The smallest of all blood cells, they are involved in promoting clotting of the blood, normally a process of healing.

PPAR gamma – Peroxisome Proliferator-Activated Receptor gamma, PPAAR gamma is a fat receptor gene that is the body's master regulator of fat development. It controls fat storage. Lenny Guarente's group at MIT recently released a study showing that SIRT1 blocked lipogenesis by blocking PPAR Gamma:
"Sirt1 promotes fat mobilization in white adipocytes (fat cells) by repressing PPAR-gamma." *Nature*. 2004 Jun 17;429(6993):771-6. PMID: 15175761

Polyunsaturated ─ see under Fat

Protein ─ One of the three macronutrients, essential for good health, proteins are structural component of all body tissue; necessary for muscular growth and cellular repair. They are also a functional component of important bodily enzymes, hormones, etc. They are used for energy only when carbohydrates and fats are not available. It is one of the three macronutrients.

Reactive oxygen molecules or **reactive oxygen species (ROS) ─** Unstable, highly reactive molecules that react with anything they contact such as cells or DNA. For a long time it was thought that ROS was only damaging but it is now known that ROS play beneficial roles in the body such as vasodilation.

Reactive oxygen molecules are produced continuously in all air-breathing animals, including humans. These molecules are a byproduct of normal metabolism. Because the normal metabolic path depends on the consumption and chemical use of oxygen, the production of ROS is unavoidable.

Red blood cell ─ Blood cell that contains and carries oxygen through the bloodstream to organs and tissues and carbon dioxide away from them for disposal

Resveratrol ─ A substance that is produced in plants in response to an invading fungus, stress, injury, infection, or ultraviolet irradiation. Resveratrol is contained in grapes, raspberries, peanuts, and numerous other plants. Resveratrol has been shown to be a potent stimulator of the longevity gene, SIRT-1.

Saccharomyces cerevisiae – The most commonly used yeast, which was domesticated for wine, bread and beer production thousands of years ago.

Saturated fat ─ See under Fat

Serotonin ─ A hormone found in the brain, platelets, digestive tract, and pineal gland, it acts both as a neurotransmitter (a substance that nerves use to send messages) and a vasoconstrictor (a substance that causes blood vessels to narrow). A lack of serotonin in the brain is thought to be a cause of depression.

SIR – Silent Information Regulator ─ A gene that regulates the deactivation or "silencing" of other cell signaling

Sirtuins ─ SIR proteins, a conserved family of proteins found in all domains of life, the first known sirtuin, Sir2 (silent information regulator 2, from which the family derives its name) of yeast, regulates ribosomal DNA recombination, gene silencing, DNA repair, chromosomal stability and longevity. It's the most important in regulating life span in yeast. Sir2 homologues also modulate lifespan in worms and flies, and may underlie the beneficial effects of caloric restriction. In mammals the so far identified homologous genes are called SIRT1 through SIRT7, where the T stands for the 2 and reduces the confusion of two numerals beside each other. As a family these SIRT proteins are called Sirtuins.

> Biological functions ranging from DNA repair to metabolism regulation are associated with six of the seven sirtuins found in mammals. SIRT1, SIRT3 and SIRT4 have been shown to play key roles in regulating metabolism *in response to dietary changes*.
>
> Sir2 proteins are **histone deacetylases**, vital regulators of fundamental cellular events, including cell cycle progression, differentiation, and tumorigenesis. Deacetylation correlates with transcriptional silencing. Deacetylases remove N-acetyl groups from amino side chains of the amino acids of histones. This allows histones to bind DNA and inhibit gene transcription. [http://www.biochem.northwestern.edu/holmgren/]

SIRT1 ─ The most researched of the genes in the sirtuin family, it is thought to play an important role in the beneficial biological changes brought about by calorie restriction.

Systole ─ The part of the heart cycle during which the heart muscle (myocardium) contracts, it pushes blood out of the chambers. The left ventricle is most often discussed in relation to systole, but all four chambers of the heart undergo systole and diastole in a timed way so that blood is propelled forward through the cardiovascular system. **Systolic blood pressure** measures the pressure on the walls of blood vessels when the heart contracts. It is the highest arterial pressure measured during the heart beat cycle. It is the upper of the two blood pressure numbers.

Tease Meal ─ A single, small course, eaten before the main meal, for the purpose of activating insulin production.

Testosterone ─ The male hormone, made primarily in the testes, it stimulates blood flow, growth in certain tissues, and the secondary sexual characteristics. In men with prostate cancer, it can also encourage growth of the tumor. Small amounts of testosterone are also produced in women by the ovaries and the adrenal glands.

TNF alpha is capable of acting independently and in conjunction with a variety of other factors to affect the expression of the genes present (the phenotype) and metabolism of cells in every tissue of the body. TNFa is generally thought not to be produced constitutively by normal cells, but rather to be induced potently by invasive stimuli in the setting of both neoplastic and infectious disease. In this role macrophages and monocytes are thought to be the cells that contribute most to the local and systemic TNFa response to bacterial, viral and parasitic organisms and products.

TOR – "Target Of Rapamycin:" this enzyme complex, named after the drug rapamycin that deactivates, regulates cell size and growth. The acronym also appears as (m)TOR for (mammalian)TOR.

Transcription – The transfer of genetic information from DNA to messenger RNA by DNA-directed RNA polymerase. It includes reverse transcription and transcription of early and late genes expressed either early in an organism's life cycle or during later development.

Triglycerides ─ The chemical form in which most fat exists in food as well as in the body, they are also present in blood plasma and, in association with cholesterol, constituting the lipids that circulate in the blood.

Triglycerides in plasma are derived from fats eaten in foods or made in the body from other energy sources, like carbohydrates. Ingested calories that are not used immediately by tissues are converted to triglycerides and transported to fat cells to be stored. Hormones regulate the release of triglycerides from fat tissue so they meet the body's needs for energy between meals.

Tryptophan ─ An amino acid that occurs in proteins, is essential for growth and normal metabolism, and is a precursor of niacin – which helps the body produce serotonin, it acts as a calming agent in the brain and plays a role in sleep.

VAP – Vertical Auto Profile Test: a comprehensive lipoprotein risk assessment for total cholesterol/lipid management

White Blood cells ─ A variety of cells that, as part of the immune system, fight infection in the body