COENZYME Q-10 **QUESTIONS AND ANSWERS**

1. **Q. What is Coenzyme Q-10?**
   - **A. Coenzyme Q10 or CoQ10 is a member of a family of important biological compounds called unbiquinones. It is a lipophilic, water-insoluble substance, which participates in a variety of biochemical oxidation and reduction reactions (redox reactions). First identified in 1957 as an essential component of the energy production system in cells, CoQ10 and other members of the ubiquinone family have since been identified as critical metabolic compounds in a range of aerobic organisms. Indeed, ubiquinones are ubiquitous.**

2. **Q. Where are the largest concentrations of Co-Q10 found in the body?**
   - **A. Because of its critical role in metabolism, humans have the ability to synthesize their own CoQ10 (e.g. it is nutritionally non-essential) although modest amounts can be obtained through diet or as supplements. In humans, CoQ10 is found in each cell in the body, but is particularly concentrated in tissues, which have large energy requirements (like the heart, liver, kidneys and skeletal muscles), with smaller amounts in the brain, lungs, and intestines. There are also substantial amounts of CoQ10 in circulation, most often associated with lipoprotein (LDL or HDL) particles. The total CoQ10 pool in a normal adult has been estimated to be between 0.5 and 1.5 grams. Within cells, about half of the cellular CoQ10 is found within the mitochondria (energy-producing centers of the cells), and this is where the final steps of CoQ10 synthesis occur.**

3. **Q. Does Co-Q10 work like a vitamin?**
   - **A. Coenzyme Q10 is like a vitamin; many ordinary vitamins in fact work as coenzymes. However, CoQ10 does not meet the technical definition of the word 'vitamin', because the body can produce it's own supply in some cases. Like vitamins, CoQ10 is essential to life. It plays an essential role in a complex series of biochemical reactions by which cells perform respiration and release energy. A 25 percent deficiency can cause disease, and a 75 percent deficiency can cause death. But if there is already enough CoQ10 taking more will not help.**

4. **Q. What form of coenzymes are used in human metabolism?**
   - **A. Only one form of coenzyme Q, namely coenzyme Q10 is used in human metabolism, and by most other vertebrates. In the body, the highest concentration of CoQ10 is found in the heart, not suprisingly, since CoQ10 allows cells to elease energy, and cells of the heart must release abundant energy. High Concentrations are also found in the liver, and in the immune system. The heart, and probably also the liver and immune system, are especially vunerable to CoQ10 deficiency. The need for CoQ10 may increase during illness. The most concentrated 'natural' source of CoQ10 readily available in the American Diet is beef heart and other red meat. Spinach, peanuts, and some other foods also contain significan amounts.**

5. **Q. What are some medical uses of CoQ10?**

A. In Japan, over ten million people use CoQ10 as a prescription medicine (Not approved as a prescription medicine in the USA) treatment or prevention of heart disease. Major scientific tests involving a total of thousands of heart patients have found that CoQ10 helped over 70% of them. These people had serious illnesses such as congestive heart failure and angina.