

Rising Stars in the Nutrition World

BY SID SHASTRI, M.Sc.

The impetus to write this article came after a recent discussion with the owner of a chain of stores. Bluntly, he asked me if there was a need for yet another brand, as I showed him a new product line. For me, and the excited sales clerk who lined up the meeting, it's not about anything but new products. For many of us, our first introduction to this industry can be traced back to a new product that enhanced our lives. That's the excitement I feel for these new products, which are the new rising stars in the nutrition world.

Ubiquinol (QH)

My first choice without question—a certified hit—is ubiquinol. After completing a New Dietary Ingredient submission to the FDA, Kaneka Nutrients L.P. (Pasadena, TX) launched ubiquinol into the marketplace as Kaneka QH. I first wrote about this antioxidant form of Coenzyme Q10 (CoQ10) in the March 2007 issue of **WholeFoods Magazine**, simply reporting on work done by scientists worldwide. By now, there are well over 30 brands selling ubiquinol in a variety of strengths and servings.

Ubiquinol is the antioxidant, *reduced* form of CoQ10, and many readers may be aware that the other typical form of CoQ10 is oxidized ubiquinone. In this instance, “reduced” doesn't mean a loss—rather, the molecule has *gained* electrons. These are minor gains on paper, but they translate into major gains for the product. At a recent tradeshow, a retailer told me that the bioavailability race in CoQ10 supplements has been played out. So, I'll spare you the details of the numbers and instead offer the key point that there is a very significant improvement in bioavailability (1, 2).

Although it is commercially new, ubiquinol natural occurs in foods. It's a powerful, lipid-soluble antioxidant that does double duty as a critical spark in the synthesis of energy. One of the key points of ubiquinol is the protection it provides in the aging process. Research has continued to uncover the association between oxidative stress and aging, but very recent work done at Kyorin University in Japan demonstrates that ubiquinol is involved. The scientists evaluated the ubiquinone and ubiquinol blood levels in subjects of different age groups. Not only do aged subjects have reduced CoQ10 biosynthesis, but their ability to convert ubiquinone to ubiquinol is also diminished (3). This may be difficult to understand without a primer on redox reactions, but it clearly points to a protective role of ubiquinol from oxidative stress.

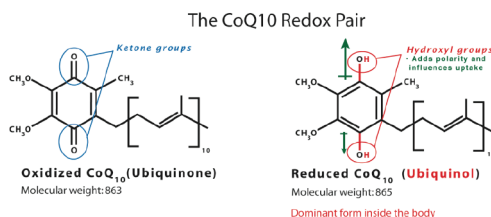


Figure 1

GPLC (Glycine Propionyl-L-Carnitine)

Another nutrient with multiple benefits is glycine-propionyl-L-carnitine (GPLC). Essentially, this molecule serves as a delivery agent for a derivative of a naturally occurring form of carnitine called propionyl-L-carnitine (PLC). And, PLC is simply a one-carbon extension of ALC—basically a carnitine bonded to a propionyl group. These are called acylcarnitines. Since there are dozens of different fatty acids, there are dozens of different types of acylcarnitines. There has been considerable published research and market awareness for carnitine and ALC (acetyl-L-carnitine). Though the propionyl extension of carnitine is not well known, research going back to 1981 shows superior heart protection in an animal model of induced heart dysfunction (4).

In the blood, PLC is much less concentrated than carnitine and ALC. The ratio of PLC:ALC:Carnitine is 0.1:1:5. But, it appears to target muscle, and therefore heart, cells. GPLC is sold as a product called GlycoCarn, and this is an excellent nutrient for supplementing PLC. Many dietary supplement companies are getting this message, as now there are a variety of products formulated with GPLC.

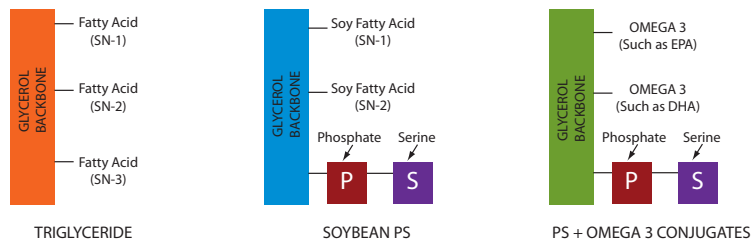


Figure 2

PQQ (Pyrroloquinoline Quinone)

Technically, this star may not be rising as it has yet to gain FDA approval as a new dietary ingredient. If the approval is granted, PQQ will become widely cross-formulated in cardiovascular, brain and sports nutrition supplements. According to scientists at the Brain Science Institute in Japan, PQQ is a newly discovered B vitamin for mammals (5). It functions as a redox cofactor such as those derived from vitamin B3 and riboflavin. Experimentally, a PQQ-deficient diet resulted in a reduced immunity and poor growth (6). Furthermore, another animal study demonstrated that a PQQ-deficient diet resulted in reduced mitochondria (7). This nutrient may have powerful mitochondrial synergies with ubiquinol, and these types of formulations are eagerly awaited.

Other Important Nutrients

Cognitive performance has been an obvious growth story in the world of nutrition, led by lipid nutrients such as DHA omega-3 oil and phosphatidylserine (PS). PS is a phospholipid found concentrated in cell membranes (particularly in the brain), where it exerts its effects on neuronal membrane fluidity. There are different types of phospholipids such as phosphatidylcholine (PC), phosphatidylinositol (PI), phosphatidylethanolamine (PE) and PS. The brain tissue in particular is remarkably high in PS, indicative of its importance in brain function. By the way, more than 50% of dry brain mass is lipid. Now, PS and omega-3 (DHA and EPA) can be found in a single molecule. As you can see from Figure 1, the PS from soy contains fatty acid tails that are soy fatty acids, which are different from PS where the tail fatty acids are DHA and EPA. Those tails are often referred to as sn-1 and sn-2 tails. PS and omega-3 are both lipids that can combine to have a very synergistic effect. PS from soy has been proven to be efficacious, but PS conjugated to omega-3 is definitely a positive evolution in PS products. **WF**

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