Adding Value and Speeding Market Penetration of Algae-based Foods and Feed

**Why sell just another ordinary protein from algae and compete on price alone, when instead you can offer a brand new high-value functional food with the unique ability to prevent genetic damage to critical brain and heart cells?**

**The Problem**

A high percentage of consumers are very concerned with food safety and value functional foods. They are willing to pay more for safer foods with fewer pesticides and hormones, as well as for healthier foods with anti-oxidants and beneficial omega-3 fatty acids of DHA.

...But most people are unaware that every type of food we eat is measurably contaminated with a particular natural background radioactive material from the air we breathe as we eat. This is called radiocarbon, or radiocarbon contamination. Although this is considered a "trace" level of contamination because it is so hard to measure, every breath of air you breathe still has more than three million of these radioactive carbon atoms, and an average every ounce of food we eat two more than 5 BILLION radioactive carbon atoms.

It has been recently discovered that these radioactive carbon atoms in our food get permanently incorporated into the DNA of growing children's brain cells, as well as into heart cell and other tissue cell DNA. The problem is that these radioactive atoms randomly explode within our DNA over the course of our lifetime, it damages the DNA and can cause a permanent mutation. It can be calculated that within the body of proteins and nucleotides consumed by a year-old child (approximately the amount in one day's food) will result in enough radioactive carbon being incorporated into the child's brain cell DNA to produce more than 500,000 genetic damage events to human cells over the child's lifetime. Overall, the radioactive food in "normal" food consumed from infancy until adulthood will cause more than thirty billion genetic damage events over the average person's lifetime, including 1,000 million genetically damaged brain cells.

Although many had formerly believed that the mutation level from this trace level of natural background radiocarbon was safe, National Academy of Sciences panel recently completed a five year study which concluded that the evidence largely supports a "linear no threshold" (LNT) model for extremely low doses of radiation (Board on Radiation Effects Research, 2000). The LNT model states that there is no safe lower level or threshold for radiation, and that any amount, no matter low, is potentially damaging to health. The panel also made particular note that radiation can alter the molecular structure of DNA, and that "some of these molecular changes are so complex that it may be difficult for the body to repair mechanisms to mend them correctly." This genetic damage may be a significant factor in certain cancers and birth defects, as well as play a role in the overall human aging process. (For more details, see our peer reviewed article in Environmental Chemistry Letters, "Recycling Greenhouse Gas Food Fish Emissions into Low-Radiocarbon Food Products to Reduce Human Genetic Damage." This paper, available at www.radiocarb.com, describes the basic scientific, technical and medical issues.)

**Even if consumers wanted to avoid this radioactive contamination in their diet—or in their child's diet—there is nothing they can do today, since all current foods, even organic foods, are equally contaminated with radioactive carbon-14.

The Solution

The carbon dioxide obtained from geologic sources, including the CO2 from the burning of fossil fuels or from making cement, is virtually free from microcontaminants, and can be used to grow safely, measurably less radioactive food.

Radiocarb Genetics, with the help of an LCCC Innovation Fund Grant and scientists from The Ohio State University, used a specially constructed greenhouse to successfully grow the first world food with measurably reduced levels of radiocarbon. Although this process was relatively expensive and not commercially feasible, it proved that edible food (in this case, soybeans) could be produced with significantly reduced levels of radiocarbon (up to 99% reduced) and under regular farming conditions. It also proved that other high value foods and nutrients are measurably unverifiable claims, these reduced radiocarbon levels can be accurately measured and certified by well established lab analyses using either radioactive methods or mass spectrometry.

Although we demonstrated that low-radiocarbon food can be produced in a greenhouse, growing algae using readily available low-radiocarbon CO2 from fossil fuels or cement manufacturing offers a far more inexpensive and scalable way of making high-protein low-radiocarbon human food ingredients or animal feed, which can be then used to make a wide range of Low-Radiocarb® foods and nutritional products.

Our less-radioactive, Low-Radiocarb® or BrainGuard® nutritional products will be particularly beneficial to infants and growing children who are building new cells and genetic material that will last their entire lifetime. A unique benefit of our low-radiocarbon foods is that the child who consumes them will inherit a lifetime benefit of reduced genetic damage to critical brain cells, even if an adult then switches back completely to eating ordinary food contaminated with higher levels of radiocarbon.

One powerful marketing opportunity is that it is possible to estimate the actual number of brain cells that will be saved from genetic damage by radiocarb for each low-radiocarbon food item consumed by a parent mother or a young child. For example, a single single-serve food bar or protein drink or other protein items consumed by a one-year-old child can prevent genetic damage from radiation to as many as 59,000 brain cells over that child's life. (see sidebar for more details)

By preventing the intake of radioactive carbon into human DNA and thus reducing levels of lifetime genetic damage, our unique low-radiocarbon foods and vitamins could therefore potentially reduce risks of cancer as well as increase longevity by slowing down the aging process.

**High-Value Low-Radiocarbon Food Products from Algae**

Food, feed, and nutritional products that are low in protein radiocarbon atoms, and nucleotides, and which can readily be derived from inexpensive low-cost and renewable sources (such as microalgae that can be grown in a greenhouse).

- Food bars and other foods enriched with low-radiocarbon protein and amino acids
- Instant breakfast drinks and other protein meal-replacement drinks
- Infant formula and baby foods
- Vitamins and other nutritional supplements and food ingredients
- Fish, chicken, fish, shrimp and other seafoods derived using algae feed
- Milk, cheese, eggs and other dairy products from livestock raised using algae feed

No other foods on the market today can offer any reduction of genetic damage from radiocarbon. The market is wide open for this brand new type of functional food.

**Intelectual Property**

Radiocarb Genetics holds the two key patents in the area of low-radiocarbon food products (U.S. Patent 8,153,973 and U.S. Patent 8,668,898). Our most recent patent (March 2014) gives us exclusive over the most important and high margin low-radiocarbon food items. To help market and promote the unique health advantages of these low-radiocarbon foods, we have obtained registered U.S. trademarks for BrainGuard® and LifeBlocks®, as well as related internet domain names.

**Exclusive Licensing Available**

We are currently looking for the right partner for an exclusive licensing arrangement, with rights to sublicense, to our intellectual property for all types of foods, infant formula, vitamins, and livestock feed derived from low-radiocarbon algae or other photosynthetic organisms.

We’re more than glad to answer all your scientific and technical questions, as well as explain how our current U.S. patents will give you the exclusive rights within the U.S. to the most profitable, high margin low-radiocarbon food products.

Why try to market ordinary algae-based food and feed products when instead you could offer a truly unique, value-added low-radiocarbon product with unmatchable benefits? Email us at abo2016@netwinds.com or call 216-365-8104.