

# Univera's Scientific Advantage

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## An Honest View

Historically, nutrition has been the stepchild of the biological sciences. When I began my research in the early 1970's, it was part of Home Economics, ridiculed as the Betty Crocker school of Nutrition. Then, in the 1980's, a growing body of research began to change the tone of that discussion, focusing on the critical role that diet and nutrition play in immunity, cardiovascular health, diabetes, cancer and aging.

As the trickle of research grew to a torrent, I was sure that nutrition would take its rightful place as equal in importance to pharmacology. After all, drugs had an important role to play in health care, but it was clear to everyone that the keys to *prevention* were to be found in the natural products arena.

And yet, as we entered the 1990's, the nutrition "revolution" was stalling. There were three important reasons for this:

**1. Lack of funding.** In a profit-oriented system, success is tied to patents. It is easy to obtain patents on synthetic molecules because they are, by definition, unique. Thus, as the pharmaceutical companies amassed thousands of patents, the natural products arena was left behind. From 1985 to 1995, more than 10,000 patents were awarded to the nine largest drug companies, creating the most profitable business in the world.

**2. Money buys power and influence.** By 1996, according to an ABC News report, "the pharmaceutical industry had more registered lobbyists than the number of senators and congressmen combined."

**3. Lack of scientific integrity.** The natural products industry has been under attack by government and the media and unfortunately, much of the criticism is self-inflicted. I know of no other industry (not even used cars) that is plagued by more exaggeration, hype and outright lies. As a matter of safety and scientific integrity, the biomedical community must hold everyone accountable, no matter the field. Natural product research must be conducted to validate its safety and utility. In my academic career at two Southern California universities, I was at odds with both sides of the health care spectrum: I would plead with the biomedical departments to look at the wisdom inherent in centuries of medicinal

plant use; and at the same time, I would challenge natural product advocates to support their claims with reliable science.

### **The Problem: Reliable Science is Expensive**

We must remember that, in addition to record profits, the pharmaceutical industry has enjoyed another source of funding. The National Institutes of Health (NIH) spends more than \$20 billion annually on research. A 1995 report by that agency looked at the five top-selling drugs and found that "NIH-funded research played a critical role" in developing each one.

### **The Solution: ECONET Provides a Resource Base to Progress Nutritional Research Light Years Ahead**

Without massive profits or taxpayer dollars, the natural products industry would need a philanthropist. Enter Bill Lee, a South Korean business leader who had purchased a Texas aloe plantation in 1988. From 1988 to 1995, the Lee family funded more than \$4 million in university research on aloe vera alone. In 1996, he started his own laboratory (known as Unigen) and poured another \$20 million into medicinal plant research. When I met Bill Lee in 1997, he explained his business plan: to set the bar for the natural products industry by utilizing advanced technologies—technologies then available only to pharmaceutical companies and large universities. To my amazement, all this would unfold in less than a decade.

### **Milestones:**

#### **1997:**

\* Medicinal plant collection and analysis begins with 500 species from China and India.

\* Unigen is awarded US patent for its novel use of Polymerase Chain Reaction (PCR) analysis of aloe vera.

#### **1998:**

\* LCMS and GCMS technologies added to Unigen's biological and biochemical capabilities.

\* Univera incorporated to distribute products developed by Unigen research.

\* Lee purchases an option on more than 140,000 acres in Southern Siberia, including a 100,000 acre botanical preserve.

\* Unigen develops MaxCell, a botanical extract to enhance nutrient bioavailability. In vivo data shows 300% increase in CoQ10 bioavailability. (US patent #6,395,311)

**1999:**

\* Phytologix™ research platform developed, with high throughput analysis of more than 1,000 medicinal plants.

\* Unigen researchers publish detailed in vivo analysis of aloe metabolism. (Yagi)

\* Univera launches MetaBerry™, the first high-potency antioxidant beverage, combining concentrates of blueberry, cranberry, black cherry and concord grape in an aloe delivery system.  
ORAC score: 2,000 per fl oz.

\* Univera launches Prime™, combining DHEA, 7-Keto, DIM, alpha lipoic acid, acetyl-L-carnitine, N-acetylcysteine, goji concentrate, B12, B6 and methylcobalamin.

**2000:**

\* Unigen and Univera scientists present research foundation for the metabolic model of aging. (Jia, 2000)

\* Unigen scientists identify immunomodulatory “sweet spot” among thousands of aloe polysaccharides. (Qiu)

\* Phytologix™ library expands to include 2,000 plants from four climate zones.

**2001:**

\* Unigen adds Genomics technology with 96-well plate capabilities, becoming the first natural product R&D facility utilizing full-scale genomics.

\* Unigen scientists document age-related decline in tissue repair, measured by urinary metabolites. (Jia 2001) Patent issued (US Patent #6,326,209)

\* Univera adds alpha lipoic acid to MetaBerry, increases ORAC score to 3000 per fl oz.

**2002:**

\* Phytologix plant library expands to 3,000 plants and 20,000 fractions.

\* First US Patent filed for a defined combination of scutellaria baicalensis and acacia catechu. #10,091,362

\* Unigen creates Protectin™, a standardized extract of scutellaria baicalensis and acacia catechu.

\* Univera launches Ageless™ capsules, combining Ornithine alpha ketoglutarate, B6, panax ginseng, eluthero, rhodiola, green tea, protectin and MaxCell.

### **2003:**

\* *The Metabolic Plan* published by Random House, finalizing the Metabolic Model of Aging and coordinating Unigen research with Univera product development.

\* First paper confirming in vivo anti-cancer activity of orally-administered scutellaria baicalensis. (Zhang)

\* Univera combines Ageless capsules and MetaBerry to create AgelessXtra. Achieves antioxidant potency of 4,500 ORAC per fl oz.

\* Univera launches RegeniCare™, combining Protectin, glucosamine, chondroitin, MSM and CMO.

### **2004:**

\* ECONET incorporated to coordinate operations of all Lee entities, including agriculture, research, manufacturing and distribution.

\* Unigen Genomics program expanded to include microarray capability, allowing for the screening of up to 1,500 genes at once.

\* Bill Lee becomes the world's leading supplier of scutellaria, planting more than 2,000 acres.

\* ECONET files record number of patents (42) in eight areas of natural products research.

### **2005:**

\* Lee purchases 1,200 acres on Hainan Island, China for aloe plantation, including 5 miles of beachfront on the South China Sea for a holistic health spa.

\* US Patent issued for antioxidant activity in aloe chromones (US Patent #6,884,783)

\* US Patent issued for the use of acacia catechu to reduce COX/LOX- mediated tissue damage. (US Patent # 7,108,863)

### **2006:**

\* Phytologix library expands to 6,000 plants and 100,000 fractions

\* Univera launches Essentials™, a comprehensive meal replacement utilizing unprecedented food science:

- A. Nanotechnology to create water soluble essential fatty acids (from cranberry seeds)
- B. Ultrafiltration and enzyme hydrolysis to reduce protein to di- and tri-peptides.
- C. Non-gelling soluble fiber
- D. Minerals from whole food concentrates

**2007:**

\* Publication of pivotal efficacy paper for Protectin™ in the *Journal of Medicinal Food*. (Burnett)

\* Publication of Protectin™ safety study in the *Journal of Food Biochemistry* (Burnett 2007)

\* Patent awarded for the activity of free-B-ring flavonoids to support joint repair. (US Patent # 7,192,611)

\* Univera launches RegeniFree™, combining Protectin™ and a standardized high potency extract of curcumin.

\* Stephen Cherniske becomes official “best-selling” author, with more than 1 million copies in print.

**2008:**

\* Unigen installs Proton Nuclear Magnetic Resonance (PNMR) laboratory.

\* 90,000 sq ft Hainan aloe processing plant goes on line.

\* Unigen conducts comprehensive gene array studies of Protectin and aloe vera, identifying important new health promoting factors.

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**Conclusion:**

Today, ECONET comprises one of the largest and best-equipped natural products R&D operations in the world, coordinating research activities with:

- \* Georgetown University
- \* Baylor University
- \* University of California Irvine
- \* University of California Davis
- \* University of Illinois

\* University of Wisconsin

\* ECONET Laboratories now total more than 100,000 sq ft, including full-scale genomics, proteomics, biological, biochemical, organic synthesis, quality control and PNMR facilities.

\* 50 Full-time scientists, including 20 PhD's, with expertise in biochemistry, botany, analytical chemistry, cell biology, molecular biology (plant and animal), human nutrition, pre-clinical and clinical research, organic synthesis and process development.

\* More than 7,000 acres under cultivation, with farms and fields in the US, Mexico, Russia, China and South Korea. Agricultural operations in every climate zone, including a 100,000 acre botanical preserve.

\* Over 160 patents awarded or pending.

\* Phytologix library now contains 12,000 plants and 300,000 fractions, with approximately 1,000 plants being added every year.

\* ECONET agricultural division now produces more than 30% of the world's raw material aloe.

**To Learn More:**

Univera provides a comprehensive website for technical and clinical information. Visit [www.univerascience.com](http://www.univerascience.com) to view technical data on each of our 33 products. A complete list of patents and trademarks is also available, along with FAQ's, information on our product development and agricultural processes, and a library of white papers, articles and essays.

All are welcomed to access the public side of the site. You'll find a convenient search function and index features to help you locate the information you desire. The clinical side, however, is available to LICENSED HEALTH PROFESSIONALS ONLY. Upon registering for a free login account, licensed professionals will receive an access code for the clinical site.

A licensed health professional is defined as a health professional who is licensed by the state where they practice. These include MD, DC, DDS, RN or NP licenses. In addition, most states license Registered Dieticians (RD), Acupuncturists (LAC), Naturopaths (ND), and Physical Therapists (PT). In general, any state licensed health professional who treats patients will fall into this category.

What about **certified** health professionals such as nutritionists, herbalists and massage therapists? According to the FDA, these health care professionals see *clients*, and do not have a doctor/ patient relationship. Because the FDA acknowledges that primary health care providers need clinical information in order to give the best care to their patients, we abide by this distinction & have thus delineated public and clinical domains within [univerascience.com](http://univerascience.com). Importantly, biomedical education is the primary intention of Univera in creating this web site. Clinical information is for EDUCATIONAL PURPOSES ONLY and may not be used to promote Univera products.

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