Solutions for Healthcare Cost Reduction and Increased Productivity
SpectraCell was established in 1993 as a pioneer in the field of laboratory functional testing for micronutrient deficiencies. Since that time SpectraCell has grown to offer advanced cardiovascular and genetic assessments and has become a leader in functional laboratory testing.

MEDICAL DIRECTORS
Mark Houston, MD
Dorothy Merritt, MD

VICE PRESIDENT OPERATIONS, LABORATORY DIRECTOR
J.Fred Crawford, Ph.D.

Technology in partnership with The University of Texas and Texas A&M University
Why Focus on Employee Wellness?

Promoting Good Health is Promoting Strong Business

- Employees are your most valuable capital investment and are vital to success.

- Nutritional deficiencies and cardiovascular risks lead to health conditions and chronic disease that lower functionality and increase the need for expensive care and prescriptions.

- Illness and chronic disease decrease employee job performance, retention and profitability.

- Chronic diseases account for 60% of medical care costs and 70% of all deaths in the US and are the most preventable of all health problems.

Overwhelming evidence confirms that cardiovascular health and nutrition are intimately linked. When nutritional deficiencies exist, heart health is seriously impaired. Assessing nutritional health with SpectraCell’s Micronutrient Test combined with the Lipoprotein Particle Profile™ test enables a physician to see the big picture.
How Many of Your Employees Look Like This?

Factors that Contribute to Lost Productivity and Decreased Profits Include:

• Presenteeism
• Absenteeism
• Prescriptions
• Medical Claims

• Rising Healthcare Premiums
• FMLA
• Disability
• Workers’ Comp

A National survey estimated that sickness presenteeism cost the United States more than $150 billion annually and accounts for 71% of the total cost of lost productivity. Studies estimate that total productivity loss, accounting for both health-related presenteeism and absenteeism, costs companies three times what they pay for pharmacy and medical claims.

A wide range of nutritional deficiencies can affect general state of well-being and are scientifically proven to contribute to the onset of chronic disease.

“Micronutrient testing offers a unique, scientifically based evaluation of functional deficiencies that allows targeted treatment with nutritional supplements...improving patient compliance with tailored therapy and success in the treatment of a variety of diseases.”

Mark Houston, MD
Hypertension Institute
St. Thomas Medical Center & Vanderbilt University
Why Advanced Diagnostics? Taking the First Step to Prevention & Wellness

Do **Health Risk Assessments (HRAs)** and **BioMetric Screenings** really give you the full picture? Without seeing the whole picture, it’s difficult to create a roadmap that will give your employees a path to optimal wellness and reduced healthcare costs.

HRAs give a perception of their health, but even employees that eat right, exercise and follow a healthy lifestyle may still have significant nutritional imbalances and deficiencies, cardiovascular risks and genetic dispositions.

Most BioMetric Screenings will provide basic information about cholesterol, body mass index, blood pressure to other markers of risk.

But, even if basic screenings do reveal some risk factors, isn’t it more valuable to get to the root of the problem and avoid treatment with expensive prescriptions and contribute to the prevention of chronic disease?

**SpectraCell’s Advanced Clinical Testing - The True Foundation of Wellness**

SpectraCell Laboratories provides advanced clinical testing that measures nutritional status, cardiovascular risk and cellular aging. As medicine progresses in the pursuit of health and wellness, SpectraCell offers an affordable, cost effective solution for employers to become proactive in employee health management and lower health costs.

**Micronutrient Testing**

**LPP™ Testing**

**Telomere Testing**
Many People Work at Improving Their Health, Yet Some Individuals Still Have Deficiencies. Why?

- **INDIVIDUALITY**
  Because each of us is metabolically and biochemically unique, the micronutrient requirements for one person may be quite different than the requirements for another.

- **ABSORPTION**
  Although you may eat a balanced diet, if you do not absorb vitamins, minerals, antioxidants and/or other essential micronutrients properly, you will have deficiencies.

- **CHRONIC ILLNESS**
  Health conditions such as arthritis, cancer, cardiovascular disease, diabetes, fatigue and multiple sclerosis, to name a few, can be affected, directly or indirectly, by micronutrient deficiencies.

- **AGING**
  Our micronutrient requirements at age 30 are quite different from our requirements at age 40, 50 and beyond. Absorption difficulties, especially of vitamin B12, quite commonly occur as we age.

- **LIFESTYLE**
  Excessive physical activity, prescription drugs, smoking, alcohol and sedentary habits all impact micronutrient demands.
Impact of Nutritional Balance on Productivity and Profit

**Nutritional Relationship**

- B3, B6, B12, Folate, Pantothenate, Biotin, Zinc, Magnesium, Oleic acid, Chromium

- Prescription medications used to treat many obesity-related conditions often induce micronutrient deficiencies. In fact, an astounding 98% of bariatric surgery patients exhibit micronutrient deficiencies within two years of surgery.

- Micronutrients such as niacin, magnesium, calcium, zinc, carnitine, inositol, alpha-lipoic acid, as well as vitamins E, B6 and D all play an important role in the prevention and treatment of diabetes.

- A recent study on more than 20,000 people concluded that adequate vitamin C levels reduced risk of stroke by over 40%. Similar studies on calcium, magnesium, folate and biotin all concluded that adequate levels of these nutrients contribute to a reduction in the incidence of stroke.

- B Vitamins are essential to reducing the effects of stress.

- Micronutrients such as magnesium, CoQ10, pantothenate and vitamins B6, B12 and D are commonly contributed to headaches. Current evidence suggests that up to 50% of migraine patients have lowered levels of ionized magnesium during acute attacks.

**Published Data & Studies**

- In a study of more than 1200 Dow Chemical Company employees, emotional problems were the greatest source of productivity loss when compared to a range of other chronic conditions, reducing worker performance by about 36%.

- Duke University study of 11,000 employees showed an increase in lost days and medical claims. Obese Level 1 employees averaged medical claims 2.5 times higher than “normal” BMI workers. Obese Level 3 workers averaged claims over 6 times higher.

- According to United Healthcare data, total estimated annual cost of a diabetic is greater than $22,000 a year, which is 13-times higher than the average cost of a “healthy” employee (defined as an individual with no chronic disease). Employer-specific studies show the following costs:
  - Pre-Diabetic: $5,000
  - Undiagnosed Diabetic: $12,000
  - Diabetic Without Complications: $10,000
  - Diabetic With Complications: $30,000
  (Source: www.uhc.com)

- According to the American Heart Association, high blood pressure was expected to cost the United States more than $76 billion in health care services, medications, and missed days of work in 2010. In 2009 the Centers for Disease Control and Prevention projected the annual cost of heart disease to exceed $475 billion. When combining presenteeism, absenteeism and health and disability benefits, the second most expensive condition identified for employers is heart disease. The highest cost is high blood pressure.

- Workplace stress costs U.S. employers an estimated $300 billion per year in absenteeism, lower productivity, staff turnover, workers’ compensation, medical insurance and other stress-related expenses. (reported by the American Institute of Stress)

- Migraine issues in the workplace are important to both the sufferer and the employer, as 150 million work hours are lost each year to head pain, costing U.S. industry up to $17 billion dollars a year. One of the latest studies on the economic cost of Migraine found that the unemployment rate in individuals with severe Migraine is 10% to 20%, several times higher than the general population. (Source: Migraine Awareness Group)
How Common are Deficiencies?

Deficiencies are Common

- Multiple deficiencies without previous supplementation (38%)
- Multiple deficiencies with previous supplementation (43%)
- Subjects showing no deficiency (19%)

Common Prescriptions Can Deplete Nutritional Status

<table>
<thead>
<tr>
<th>Prescription Types &amp; Examples</th>
<th>Common Nutrient Deficiencies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CHOLESTEROL DRUGS</strong></td>
<td>Coenzyme Q10</td>
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<tr>
<td>Lipitor, Crestor, Zocor and others</td>
<td></td>
</tr>
<tr>
<td><strong>ANTI-DEPRESSANTS</strong></td>
<td>Coenzyme Q10, Vitamin B2</td>
</tr>
<tr>
<td>Adapin, Aventyl, Elavil, Pamelor, &amp; others</td>
<td></td>
</tr>
<tr>
<td>Major Tranquilizers (Thorazine, Mellaril, Prolixin, Serentil &amp; others)</td>
<td></td>
</tr>
<tr>
<td><strong>FEMALE HORMONES</strong></td>
<td>Vitamin B6, Folic Acid, Vitamin B1, Vitamin B2, Vitamin B3, Vitamin B6, Vitamin B12, Vitamin C, Magnesium, Selenium, Zinc</td>
</tr>
<tr>
<td>Estrogen/Hormone Replacement Oral Contraceptives</td>
<td></td>
</tr>
<tr>
<td><strong>ANTI-INFLAMMATORIES</strong></td>
<td>Calcium, Vitamin D, Magnesium, Zinc, Vitamin C, Vitamin B6, Vitamin B12, Folic Acid, Selenium Chromium</td>
</tr>
<tr>
<td>Steroids: Prednisone, Medrol, Aristocort, Decadron</td>
<td></td>
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</tbody>
</table>
Micronutrient Testing - What is Measured?

Comprehensive Assessment of 33 Important Micronutrients and Total Antioxidant Function

**VITAMINS**
- Vitamin A
- Vitamin B1
- Vitamin B2
- Vitamin B3
- Vitamin B6
- Vitamin B12
- Vitamin C
- Vitamin D
- Vitamin K
- Biotin
- Folate
- Pantothenate

**MINERALS**
- Calcium
- Manganese
- Magnesium
- Zinc
- Copper

**AMINO ACIDS**
- Asparagine
- Glutamine
- Serine

**ANTIOXIDANTS**
- Alpha Lipoic Acid
- Coenzyme Q10
- Cysteine
- Glutathione
- Selenium
- Vitamin E

**SPECTROX™ for Total Antioxidant Function**

**IMMUNIDEX™**
- Immune Response Score

**CARBOHYDRATE METABOLISM**
- Chromium
- Fructose Sensitivity
- Glucose-Insulin Metabolism

**FATTY ACIDS**
- Oleic Acid

**METABOLITES**
- Choline
- Inositol
- Carnitine

Comprehensive Test Results

<table>
<thead>
<tr>
<th>Repletion Suggestions</th>
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<tbody>
<tr>
<td>1. Vitamin D3 (Cholecalciferol) (Vitamin D3-1-alpha 25-dihydroxyvitamin D)</td>
</tr>
<tr>
<td>2. Calcium</td>
</tr>
<tr>
<td>3. Zinc</td>
</tr>
<tr>
<td>4. Total Antioxidant Function</td>
</tr>
<tr>
<td>500 mg b.i.d. (1000 mg daily) as citrate, malate, ascorbates or glycinate</td>
</tr>
<tr>
<td>25 mg daily</td>
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</tbody>
</table>

Based on Spectrox and individual Antioxidant tests:

* Glutathione Deficient: 600 mg t.i.d. (1800 mg daily) of N-Acetylcysteine (NAC) Take each dose with a meal
* Cysteine: The daily dose of N-Acetylcysteine (NAC) listed for Glutathione is usually sufficient for Glutathione and/or Cysteine repletion.
* Vitamin E: 200 IU daily of mixed tocopherols
* Selenium: 50 mcg daily
* Coenzyme Q10: 30 mg daily of CoQ10 Take each dose with a meal
* Lipoic Acid: 50 mg daily
* Vitamin C: 250 mg daily
Cardiovascular Risk is “Risky Business”

2600
The number of Americans that die every day from cardiovascular disease.

50%
The number of people suffering from heart attacks that have “normal” cholesterol numbers.

17 million
The number of Americans with diabetes. Diabetics are more likely to carry more small dense LDL even with normal cholesterol numbers.

How many employees fall into these categories?
How much will this cost your company this year?
Lipoprotein Particle Profile™

Cholesterol testing has historically been used as the standard indicator for cardiovascular disease classified as HDL (good) or LDL (bad). However, it is actually the lipoprotein particles that carry the cholesterol throughout the body, not necessarily the cholesterol within them, that are responsible for key steps in plaque production and the resulting development of cardiovascular disease.

Direct Measurement of Particle Subgroups
- Small, dense LDL III, LDL IV - dangerous, not treatable with cholesterol drugs
- Remnant Lipoprotein - very dangerous, causes plaque to build quickly
- Lp(a) - hidden risk, hereditary, can cause fatal heart attack
- HDL2B - clears bad cholesterol particles from the body

Also Included:
- C-Reactive protein
- Triglycerides
- Insulin
- Homocysteine
- Metabolic Syndrome Traits
- Cholesterol equivalents for HDL, LDL, Total Cholesterol

Each patient below has the same LDL cholesterol number, but a different risk for heart disease. Small particles mean a higher risk. Bigger is better!

Lipoprotein Particles VS Cholesterol: LDL = 125
SpectraCell’s LPP™ testing identifies risks not reported with standard cholesterol testing. More targeted treatment saves lives and healthcare dollars.

**Comprehensive Test Results**
Easy-to-compare reference values

**Easy-to-Understand Results:**
- Green is Normal
- Yellow is Borderline
- Red is High

**Most comprehensive panel available!**

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**Lipoprotein Particle Testing - Therapeutic Guidelines**

<table>
<thead>
<tr>
<th>Lipoprotein Abnormality</th>
<th>Lifestyle Changes (diet &amp; exercise)</th>
<th>Statins</th>
<th>Niacin</th>
<th>Fibrates</th>
<th>Oral Estrogens</th>
<th>Resins</th>
<th>Absorption Inhibitors</th>
<th>Omega-3’s EPA &amp; DHA</th>
<th>Alcohol (moderate)</th>
</tr>
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<tbody>
<tr>
<td>VLDL (Triglycerides)</td>
<td></td>
<td>♥</td>
<td>♥</td>
<td>♥</td>
<td>♥</td>
<td>x</td>
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<tr>
<td>RLP (IDL)</td>
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<td>x</td>
<td>x</td>
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<tr>
<td>LDL I &amp; II Buoyant</td>
<td></td>
<td>♥</td>
<td>♥</td>
<td>♥</td>
<td></td>
<td></td>
<td>x</td>
<td>♥</td>
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<tr>
<td>LDL III - Dense</td>
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<td></td>
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<tr>
<td>LDL IV - or Lp(a)</td>
<td></td>
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<td></td>
<td>x</td>
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<td>x</td>
<td>♥</td>
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<tr>
<td>HDL 2b - Buoyant</td>
<td></td>
<td>♥♥</td>
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<td>x</td>
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<td>♥</td>
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<tr>
<td>HDL 2a &amp; 3</td>
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<td>♥</td>
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<td>x</td>
<td>♥</td>
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*Therapeutic | Beneficial | Little or No Effect | Negative Effect

*These guidelines provide some of the treatment options available to modify abnormal lipoprotein results determined by the LPP™ test.
**SpectraCell Laboratories observed response to treatment.
The National Cholesterol Education Program (NCEP) guidelines provide dosage information on the treatment options.
Other Tests Available

- **Telomere Testing**
  determines your patient’s cellular age and provides an innovative diagnostic tool for anti-aging medicine.

- **ApoE & MTHFR Genotyping**
  identifies genetic markers for better treatment strategies for cardiovascular and aging conditions.

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**CardioVIP**

**Vascular Improvement Program**

A state-of-the-art Vascular Improvement Program Customized For You and Your Heart.

We provide a combination of physical images of an individual’s arteries and speacialized blood test results to further understand the degree of heart disease and stroke risk.
We can assist with promotions in print and electronic formats.

Perfect for lunch and learn events and health fairs.

INCLUDES:
- e-blasts
- e-newsletters
- webinars
- posters
- seasonal health promotion

Cardiovascular diseases, including stroke, are our nation's No. 1 killer. Join the American Heart Association in the battle against these diseases.

50% of people at risk are not identified through routine testing. SpectraCell's LPP™ testing can reveal additional risk factors that can only be identified with advanced lipoprotein testing.

Ask Dr. Melde to schedule your LPP™ test today!

Are You At Risk?

Who should take the LPP™ Test?

Every woman is born with 20 billion healthy red blood cells that contain the oxygen-carrying protein Hemoglobin (Hb). Every day, 20 billion red blood cells are destroyed in the liver and spleen for recycling. As we age, we lose 20 billion red blood cells every day. In fact, people can be diagnosed with Iron Deficiency Anemia and more.

SPECTRACELL'S LPP™ (Lipoprotein Phenotyping) includes:
- Measures C-reactive protein (CRP), a marker of inflammation
- Measures oxidized low-density lipoprotein (OxLDL), a marker of atherosclerosis
- Measures fibrinogen, a marker of increased blood clotting
- Measures high-sensitivity C-reactive protein (hs-CRP), a marker of inflammation
- Measures D-dimer, a marker of clotting

SCHEDULE YOUR TESTING TODAY!
Protect Yourself
this cold and flu season!

Optimize your
IMMUNE FUNCTION PERFORMANCE with
SpectraCell’s Micronutrient Testing.

Take a natural approach to cold and flu prevention.
Ask your doctor for more information.

www.SpectraCell.com