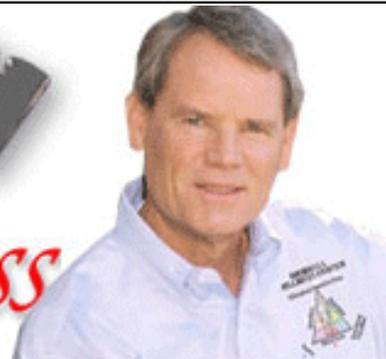




*Dr. Brimhall's*  
*One More Piece of the Puzzle*



*For Wellness*

**Dr. Brimhall's Health Puzzle Piece**

**May 27, 2008**

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 800-343-0754  
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 Workshop.

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### **This Weeks Article...**

### **Genetic, Genomic and Epigenetic Expression**

I have been to Korea twice in the past six months and have studied constantly in between trips. It is my goal to understand the genetic cards that we have been dealt and which card game we are playing in life. We are a summation of our cells, and if you have been following the weekly Puzzle Pieces, you will remember that human cells are pre-programmed for death at their creation.

We have completed genetic tests on many patients and doctors now, one of which I will give you a brief summary of today. The results will demonstrate the benefits of understanding the existing genomic profile and how to manipulate it for optimal epigenetic expression and improved health.

Here is one very small part of a report from a 30-year-old female, reflecting only one of the unfavorable SNPs:

## Glutathione-S transferase type Theta-1

### Very High

Cellular reduction-oxidation (redox) status is an important regulator of various aspects of cellular functions. Cellular redox balance is maintained by several intracellular redox-regulating molecules, including SOD, catalase, and redox systems of glutathione. GST-M1, GSTP1 and GSTT1 are key molecules in glutathione redox system. It helps to clear away toxic peroxides by combining with glutathione-redox.

The polymorphism of GST-T1 presents as null (deletion) type. Unfavorable polymorphisms in the GST genes are associated with decreased activity of GST enzyme and decreased detoxification/ antioxidant mechanism.

Unfavorable SNP of GST-T1 (deletion, null type) is associated with chronic fatigue syndrome and idiopathic systemic pain syndrome. It is also associated with higher risk of lung cancer on smoking as compared with wild type GST-T1.

### GST-T1 null type

Unfavorable or high risk genotype for chronic fatigue syndrome, idiopathic pain syndrome and cancer.

The following measures to complement weak antioxidant/ detoxification mechanism are recommended,

1. Avoid smoking and psychological stress.
2. Maintain ideal body weight.
3. Take anti-inflammatory nutrients (EPA, DNA, GLA).
4. Eat low trans-fat diet and diet rich in antioxidants: spinach and other vegetables.
5. Take anti-inflammatory nutrients (EPA, DNA, GLA).
6. Combined administration of multiple antioxidants in high dose is recommended which can supplement defective natural antioxidant mechanisms : Vitamin E, vitamin C, selenium, glutathione, lycopene/lutein/ zeaxanthine, flavonoid, N-acetyl cysteine, alpha-lipoic acid, Coenzyme Q10, in addition to folic acid, vitamin B6, B12.

This section of the test shows a synopsis of only one of eight unfavorable Single Nucleotide Polymorphisms (SNPs.) The report generated nutrition recommendations were: DSF, Super Ox, Homocysteine Redux, Total Inflam, Total Chelate, Total Liver Detox and Total Mitochondria.

Here is some good news that came from this report: out of the total seventy-two genes tested, only eight were found to be unfavorable. Below is also part of the good news that no cancer related genes tested were unfavorable.

### **DNA damage and cancer risk analysis (Mutation and Methylation assay)**

The present DNA sample did not show mutation or high risk SNPs of two of the most important cancer related genes (p53, K-Ras). This suggests that the patient has no evidence of genomic DNA damage. In addition, it did not show aberrant promoter methylation of 4 important suppressor genes (p16, RASSF1A, BRCA1, GSTP1). This suggests low risk of having cancer or developing cancer in the near future.

Here are some of the good, the bad and the ugly in her genetic findings:

### **Overall Interpretation**

The results suggest that the aging process of the patient is normal however; currently there is some risk of acceleration due to unfavorable inherited genetic risks. The major inherited SNPs all deal with antioxidant function, the body's ability to clear away free radicals. The patient does have a protective gene profile, which include a variety of protective mechanisms. e.g. MC4R, ALOX5, ApoE, ApoA, LEP, FGB, F5, IL6, Col1A1, MTHFR, CYP1A1-2. This protective gene profile, maintaining a balanced lifestyle and good nutrition can potentially help to improve the overall health of the patient. Reducing stress is essential to improve the patient's overall health. The unfavorable polymorphism of several anti-aging genes especially SOD2, suggest she may have some difficulty reducing the accumulation of free radicals which can accelerate the aging process and age related disorders. She is at higher risk of progressive atherosclerosis, inflammatory disorders and age related problems than other people due to her unfavorable polymorphism, SNP, (inherited) genetic profile. The patient must take care to suppress free radicals and reduce stress. In order to maintain optimal health, it is recommended that the patient undergo routine health screenings for aged related disorders.

I have shortened this report to just a glimpse, but you can see that even a glimpse provides a lot of information. We will continue to do research, test patients and develop techniques for altering genetic expression toward health and wellness. Please remember the 635 NM wave length of the Erchonia Laser promotes balance at transcription and translation in the genomic picture. Please refer to the seminar manual and our book Solving the Health Puzzle for further information and references.

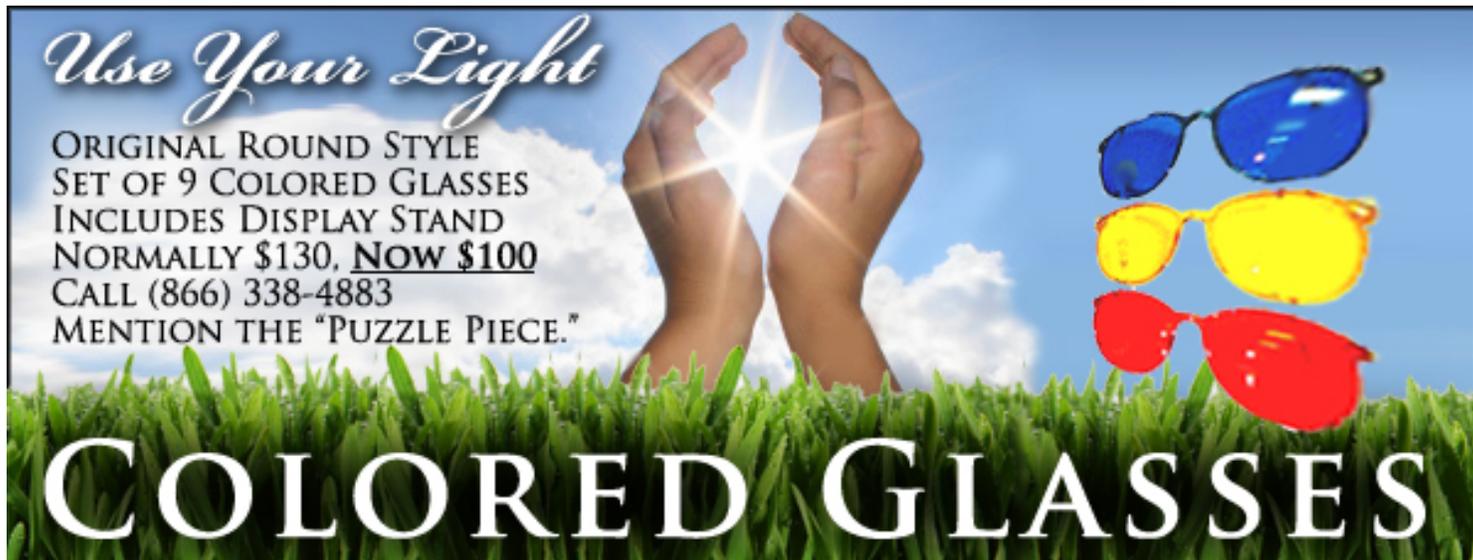
We look forward to seeing you soon at a Nutri-West/Brimhall seminar where we will teach the latest and greatest findings in the field of genetics, genomics and epigenetics. We will provide you the tools to catapult you toward success in your practice, as well as your personal and family health.

John W Brimhall, DC and the Wellness Family



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