

# BATTLING CANCER WITH COQ10, POLYMVA AND OTHER NUTRACEUTICALS

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## Cancer

- Like AIDS, will be a Black Plague for the 21<sup>st</sup> Century.
- One in three Americans will develop cancer.
- 2/3 will die in less than five years.
- By the year 2005, cancer will surpass heart disease.
- Why? Age of Chemicals – Environmental toxins
- Conventional (surgery, radiation, chemotherapy) vs Alternative approaches.
- Arsenal of diet, phytonutrients, herbs, and antioxidants.

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## Avoiding DNA Damage From Micronutrient Deficiencies

- Folic acid, zinc, B6, B12, C, E, selenium and coenzyme Q10.
- Deficiencies may lead to chromosomal breaks, changes, and DNA damage.
- One-quarter of population that consumes the fewest fruits and vegetables has double the cancer rate compared to 25% with the highest intake.
- 2-20% of US population deficient in one or more of these micronutrients.

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## Breaking Genetic Codes

- Genetic variation in MTHFR gene – people cannot properly metabolize folic acid leading to high homocysteine
- Women with this particular variation are 37% more likely to develop breast cancer
- If dietary folic acid intake is low and patients possess this gene, their risk of developing breast cancer jumps to 71 to 83%
- Low folic acid can increase risk for DNA aberration that can set the stage for any cancer

Gammon C, Chan W, et al. One-carbon metabolism, MTHFR polymorphisms and risk of breast cancer. *Cancer Research* 2005;65:1606-1614.

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## Micronutrients and Cancer

- B vitamins – colon and prostate cancer.
- Vitamin C – lowest levels in smokers.
- Vitamin E – reduces colon and prostate cancer.
- Selenium – reduces prostate and colorectal cancers.
- Zinc – reduces esophageal cancer.
- Vitamin D – less breast and prostate cancer in sunny climate areas.
- Coenzyme Q10 – breast and cervical cancers.

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## Vitamin E and MV Lower Colon Risk

- 444 colon cancer cases vs 427 controls
- Risk of colon cancer lower in multivitamin group
- Vitamin E 200 IU or more plus multivitamins for 10 years, 57% risk reduction in bowel cancer

Reference: *Cancer Epidemiology Biomarkers Prev*. 1997;6:769-774.

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## Carotenoids & Cancer

- Lycopene – Protects against digestive tract cancers.
- Ten servings per week of tomato-based foods showed reduction of prostate cancer by 45%.
- Cryptoxanthin – Showed reduced cervical cancer risk in 15,161 women over 15 years

Source:  
Bagnha, AM, et al., *Cancer Epidemiology, Biomarkers & Prevention*, July/August 1998  
Franceschi, S, et al., *International Journal of Cancer*, October 1994  
Giovannucci, E, et al., *Journal of the National Cancer Institute*, December 1995

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## Lycopene Cancer & CVD

- Power antioxidant – 2:1 over beta carotene
- Humans dependent on dietary uptake – 85% tomato, fruit and tomato-based products, some from guava, watermelon, papaya, and pink grapefruit
- Low serum lycopene on exposure to light may increase risk of skin cancer

Reference: Ramly, PM. Is lycopene beneficial to human health? *Phyt Chem.* 2000;54:233-236

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## Lycopene Cancer & CVD – cont'd

- Increased lycopene reduces incidence of prostate, digestive, bladder, and cervical cancers.
- Like beta carotene, increased adipose levels – lower incidence of CV disease.
- Lower serum lycopene increases the risk of cardiovascular disease.

Reference: Famly PM. Is lycopene beneficial to human health? Phyto Chem 2000;54:233-236.

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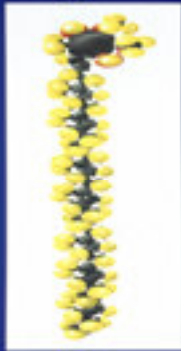
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## CoEnzyme Q10



2,3-dimethoxy-5-methyl-6-decaprenyl-1,4-benzoquinone

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## Mechanisms of Action of CoQ10 and Cancer

- Immune stimulation.
- Increases antibody synthesis, increases numbers and activities of macrophages and T-cells.
- Increases CD4 to CD8, T cell ratios in humans.
- Prevents free radical oxidative damage to DNA.
- Maintains cellular integrity and stabilizes cellular membranes.
- Upgrades 700 gene receptors
- Induces apoptosis in cancer cells
- 70% inhibition of prostate cancer – PC-3

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## Coenzyme Q10 and Cancer

- Protects the heart from oxidative stress – chemotherapy drugs and anthracyclines.
- Low blood levels detected in some types of cancers and leukemias.
- Immunostimulatory potential in animals and humans.
- Human anecdotal cases and cancer remission.
- No randomized controlled clinical trials of CoQ10 as a treatment for cancer have been published in a peer reviewed journal.

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## CoEnzyme Q10 & Cancer

- Leukemia and children – 1998 Int'l Conference on CoEnzyme Q10
- 116 patient study in Sweden. Females with Q10 levels <.6 ug – Breast cancer incidence 38.5%.
- 200 women hospitalized for positive breast biopsy and/or resection of tumor. CoQ10 deficiency noted in 80 patients with carcinoma.

References: Fokers K, et al. "Activities of vitamin Q10 in animal models and a serious deficiency in patients with cancer". *Biochem Biophys Res Commun.* 234(2):296-299:1997.

Joliet P, Simon N, Baire J, et al. "Plasmacoenzyme Q10 concentrations in breast cancer: prognosis and therapeutic consequences". *Internat. J of Clin Pharm and Therapeutics.* 36(9), 508-513:1998.

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## CoEnzyme Q10 and Cervical Cancer

- Cervical Intraepithelial Neoplasia (CIN)
- Biopsy confirmed CIN. Low total Q10 and alphatocopherol

Decreased Plasma CoEnzyme Q10 and a-Tocopherol Levels in women with Precursor Cervical Dysplasia

| GROUPS | (n) | TOTAL Q10 (ug/ml) | a-T (ug/ml) |
|--------|-----|-------------------|-------------|
| Normal | 19  | 0.936±0.47        | 14.2±5.0    |
| CIN I  | 34  | 0.427±0.28        | 10.2±3.3    |
| CIN II | 19  | 0.440±0.27        | 9.0±2.4     |

Reference:

Palan PR, Romney SL, et al. "Decreased plasma coenzyme Q10 and a-tocopherol levels in women with precursor cervical dysplasia". *Am Journal of Nut.* Abstract 73. 1998.

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## Breast Cancer and Statins

- CARE Study of 576 postmenopausal women – 12 breast cancer vs 1
- Texas Study – 13 breast cancer vs 9 (nonsignificant)
- Is there a biochemical rationale for cancer?

Reference:  
 Lewis SL, et al. "Effects of Pravastatin on Cardiovascular Events in Women After Myocardial Infarction: The Cholesterol and Recurrent Events (CARE) Trial." *JACC* 32(1): 140-146, 1998.  
 Downs JR, et al. "Primary Prevention of Acute Coronary Events with Lovastatin in Men and Women with Average Cholesterol Levels." *JAMA* 279(20): 1675-1683, 1998.

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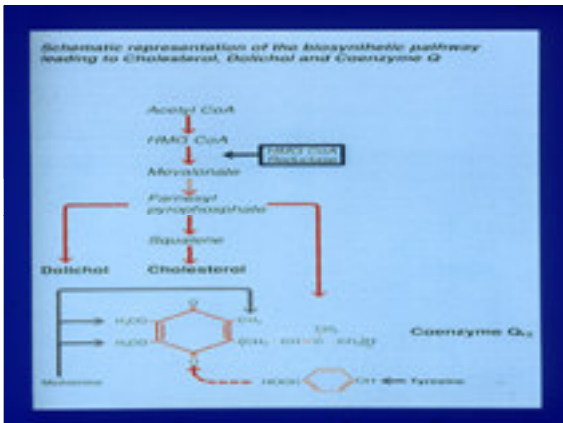
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## High Risk Women for Breast Cancer Must Use *Statins* with Caution

- Positive family history of breast cancer
- Aging
- Excessive alcohol consumption and saturated fats
- Excessive exposure to environmental toxins and pesticides
- Excessive exposure to petrochemicals, xenoestrogens
- Vegetarianism
- Thyroid disorders

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## CoQ10 and Breast Cancer

- Non-blinded uncontrolled clinical trial of 32 patients.
- Disease in axillary lymph nodes and many distant metastases.
- Antioxidant support including vitamin C, E, beta carotene, trace minerals, essential fatty acids, and 90 mg of coenzyme Q10 with some patients receiving 300-390 mg.
- Radiation, chemotherapy with and without Tamoxifen.
- All 32 decreased use of analgesics and reported better quality of life.
- All remained alive at 24 months of observation, whereas 6 deaths were expected.
- Study had intrinsic weaknesses – no controlled group/multiple variables.

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## Anecdotal CoQ10 Case Evidence

- Three patients with breast cancer – 390 mg CoQ10 followed 3-5 years – all in remission.
- In patients receiving CoQ10 with chemotherapy, radiation, and/or surgery, longer survival rates were observed in pancreatic, lung, rectal, colon, prostate, and laryngeal cancer.

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## Adverse Effects of Coenzyme Q10

- No serious toxicity has ever been associated with CoQ10.
- Dosages in excess of 100 mg may cause mild insomnia.
- Liver enzyme elevation has been detected in patients taking 300 mg or more per day but no liver toxicity reported.
- Minor epigastric discomfort and diarrhea.
- Other reported side effects include photophobia, irritability, and heartburn.
- Controversial relationship with the anticoagulant drug Warfarin.

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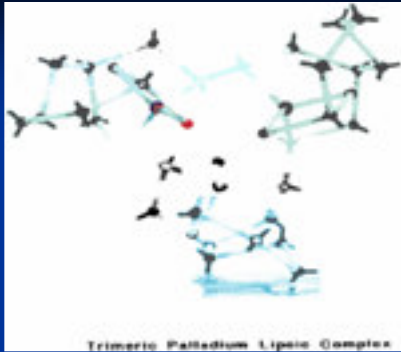
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Trimeric Palladium Lipoic Complex

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## Poly-MVA

- Merrill Garnett, molecular biologist, discovered Poly-MVA after studying over 20,000 compounds.
- Palladium, alpha lipoic acid, B12, and thiamin.
- Animal studies and anecdotal case human reports reveal Poly-MVA to be a non-toxic and safe effective anti-tumor agent.
- Research in Canada demonstrates a complementary action with standard chemotherapy with a reduction in side effects.
- Controlled human trials need to be done.

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## Cancer Physiology and Poly-MVA

- 70 years of research on cancer cells have determined an altered energy metabolism when compared to normal cells.
- The primary source of this alteration in energy metabolism involves the pyruvate dehydrogenase complex (PDH).
- Genetic changes associated with malignant transformation activates a tumor-specific PDH isoform.
- PDH is one of only a few enzyme complexes to integrate lipoic acid.
- The use of lipoic acid derivatives to specifically target cancer cells via the PDH complex may be the magic bullet in cancer cellular metabolism.
- This altered PDH isoform is the target for the lipoic acid/palladium (LAPD) complex for cellular cancer-killing.
- This highly specific way to kill or inhibit the growth of cancer cells is the most exciting targeted cancer chemotherapy in the 21<sup>st</sup> century.

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## Poly MVA -- Mechanisms of Action

- Palladium-lipoic acid complex has remarkable conductive properties.
- The complex can transfer charge from fats to DNA, completing an electrical circuit.
- The complex restores the mitochondrial and cell membrane potential of anaerobic cells.
- Restoring the voltage in anaerobic cells inhibits sterol biosynthesis and cell membrane formation, limiting membrane regeneration.

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## Poly MVA Mechanisms of Action con't

- In an aerobic cellular state, the complex charges the membrane at sites that are unable to discharge the electrons to the mitochondrial oxygen pathway. This accumulated charge produces protein radicals, thereby denaturing and blistering the cell membrane. Anaerobic tumor cells are destroyed by this event.
- Simply stated – certain tumor cell membranes are electrocuted by Poly MVA.

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Fluorescent Probe Shows Rise in Electropotential : (Reductase v. Yeast)

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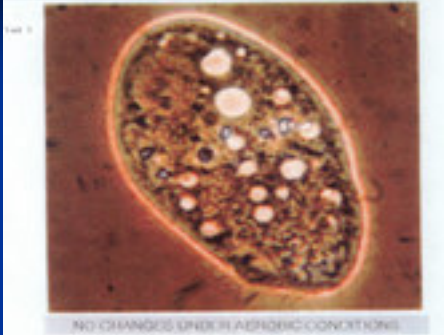
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EFFECT OF SYNTHETIC REDUCTASE ON TETRAHYMENA



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Effect of Synthetic Reductase on Tetrahymena



Membrane Failure After Concurrent Nitrogen Purging

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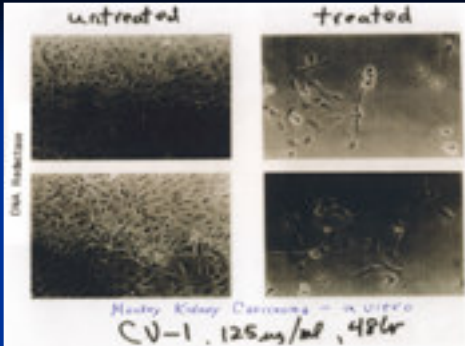
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Monkey Kidney Carcinoma - In Vitro

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## Essiac Tea Detoxification

- 1930's – René Caisse
- 1938 Canadian legislature – 3 votes
- Original formula contained sheep sorrel, burdock root, slipper elm bark and rhubarb root
- Other new supporting herbs include kelp, red clover, blessed thistle and watercress
- These herbs collectively help to remove heavy metals, build the immune system and detoxify the body

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## Other Cancer Remedies

- FIR Infrared Sauna
- Hyperthermic Therapies
- Reduce sugar, increase oxygen, increase pH
- Beam Ray – light therapy – Bioresonance
- IV vitamin C – Hydrogen peroxide

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## Vitamin C – Cancer

- 1969 IV vitamin C demonstrated to kill cancer cells
- Tumor cells lack the enzyme catalase
- Cancer cells extraordinarily sensitive to hydrogen peroxide
- IV vitamin C safe
- Check for G6PD deficiency
- Use physicians that routinely use IV vitamin C

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## Natural Cox-2 Inhibitors

- Blocking Cox-2 enzymes may prevent cancer.
- Unexplained relationship between long term use of aspirin and NSAIDs for arthritis and lower incidence of cancer.
- Profound reductions in colon cancers.
- As Cox-2 activity increases, so does occurrence of cancers.
- Natural Cox-2 inhibitors, green tea, rosemary, turmeric, ginger, oregano, omega-3 essential fatty acids, i.e., DHA.

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## Tailor Your Diet to Prevent the Cancers that Concern You

| <u>Area of Concern</u> | <u>Most Beneficial Foods</u>  |
|------------------------|---|
| ➤ Tumor Growth         | Sulfa compounds in garlic, polyacetylenes in garlic, and triterpenoids in licorice root   |
| ➤ Gynecologic cancers  | Broccoli, Brussels sprouts, kale, cabbage, turnips, collard greens, and cauliflower help inactivate metabolites of estrogen. Squalene, in olive oil has been shown to decrease breast cancer incidence. |
| ➤ Prostate Cancer      | Lycopene, mainly found in tomatoes, also in watermelon and guava. Quercetin-rich foods like apples, onions, and tea, and foods containing vitamin E and selenium.                                       |

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## Tailor Your Diet to Prevent the Cancers that Concern You (Cont'd)

| <u>Area of Concern</u>    | <u>Most Beneficial Foods</u>   |
|---------------------------|--|
| ➤ Skin Cancer             | Carnosol, from rosemary, and ingredients in green tea and the OPC Pycnogenol, which inhibits NF kappa-B, help prevent skin cancer.   |
| ➤ Lung Cancer             | The alpha-carotene in pumpkin, red and yellow peppers, and corn may be beneficial for those at risk for lung cancer. Lutein, in spinach and kale, can help smokers stay cancer free. |
| ➤ Digestive Tract Cancers | Quercetin-rich foods. In a large Chinese study, those who ate the most onions had the lowest incidence of stomach cancer.  |

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## Six Simple Sinatra Solutions for Fighting Cancer

- 10 minutes of sunlight (vitamin D) and 800 IU of vitamin D a day
- A multivitamin with 800 mcg of folic acid or calcium folinate, 40 mg of B6, 200 mcg of B12, Metafolin if MTHFR deficiency
- CoQ10 – 200 to 400 mg
- Poly MVA – 2 Tbsp 3 to 4 times a day
- Essiac Tea -- 2 oz in am & pm on empty stomach
- IV vitamin C – 25 to 75 gms 1 to 2 x pr week

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## Basic Cancer Prevention

- Avoid chemicals, toxins, carcinogens.
- Drink clean water without excessive chlorine or chemicals.
- Raw foods/enzymes.
- Digestive enzyme supplements.
- All organic foods, meats, dairy, wild salmon
- Increase probiotics in the diet.
- 3-5 servings organic fruit and vegetables daily.
- Fast 1-3 days monthly.
- Natural Cox-2 inhibitors.
- Detoxification – Essiac tea, FIR sauna, heavy metals, insecticides, pesticides, radiation

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