

Breast Health: Herbs Supplements



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Breast Cancer Options: A Holistic Approach to Health
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Disclaimer

The information contained in the following presentation is not intended to substitute for a health care practitioner's diagnosis, advice or treatment. It is based on the education, experience and research of the author, and is included as part of an overall program for wellness.

Before using any drug, supplement, food or herb described in this material or in the presentation, each individual should consult with a qualified health care practitioner for guidance with individual medical problems.

Any attempt to diagnose or treat an illness should be done under the supervision of a health care professional.

The author is not responsible for any adverse effects or consequences resulting from the use of the following information.

Always discontinue any substance taken if signs of skin rash, light sensitivity, difficulty breathing or gastro-intestinal upset occurs, and report this to your health care professional.

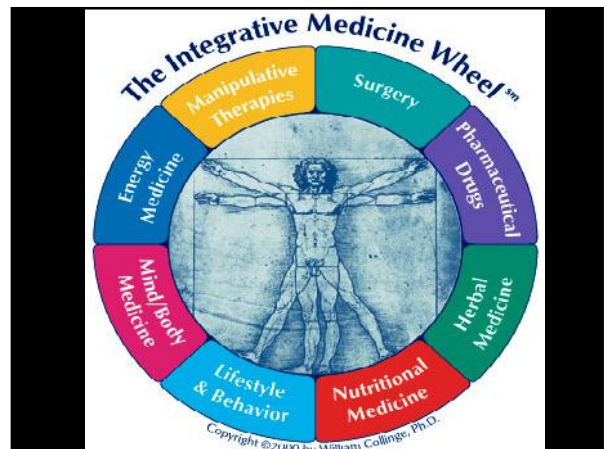
Prescription medication should be discontinued ONLY with the approval and supervision of a physician.

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INTRO

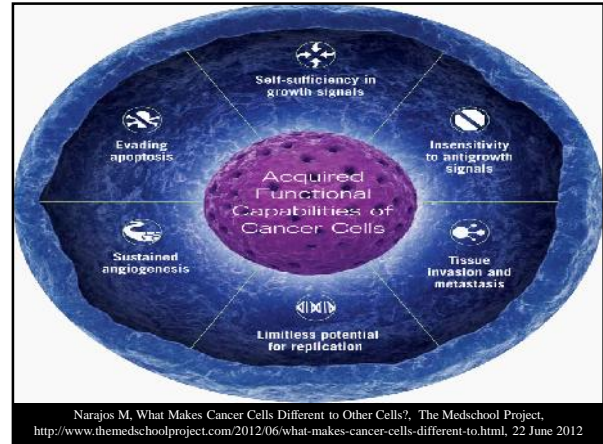
Contents

- ❖ Intro
- ❖ Safety
- ❖ Targets: *Aromatase, ER, Her2, NFKb, p53, VEGF*
- ❖ Herbs: *Black Cohosh, Bromelain, Milk Thistle, Reishi, Trametes, Resveratrol, Turmeric*
- ❖ Supplements: *A-Lipoic Acid, Fish Oil, Indole3-Carbinol, Melatonin, Vitamin B Complex, Vitamin D3, Vitamin E Complex*
- ❖ Resources: *Organizations, Books*
- ❖ Bibliography



Intro

- ❖ Patient-specific integrative approach—
 - Botanical Medicines
 - Nutritional Medicines
 - Dietary Medicines
 - Conventional Medicines
 - Traditional Medical Techniques & Practices
 - Lifestyle Counsel
 - Spiritual & Psychological Guidance
- ❖ Match people to their medicines.



Intro

- ❖ Hallmarks for a cell to develop cancer—
 - Continuous self growth.
 - Insensitivity to anti-growth signals from surrounding cells.
 - Unlimited division potential.
 - Resists normal cell death.
 - Recruits blood supply.
 - Ability to spread & colonize new sites.
- ❖ Many places & opportunities to intervene.
- ❖ Change the inner terrain.
- ❖ Enhance prevention, improve treatment response, reduce treatment side-effects, improve quality & quantity of life.



Safety

- ❖ 40 average deaths a year from herbs, historically.
Duke J. 2001.
- ❖ 98,000 - 140,000+ deaths a year from prescription drugs.
Duke J. 2001.
- ❖ Prescription medications kill 100,000+ people yearly when properly prescribed, while vitamins have not caused a single death in 27 years.
Anon. Orthomolecular Medicine News Service, 2011.
- ❖ Food supplements, herbal remedies 'supersafe,' death risk from use is less than 1 in 10 million.
Anon. Engredea, 2012.

Safety

- ❖ Much fear & debate over use of antioxidants during chemo & radiation treatment.
- ❖ Scientific data don't show interference or harm.
- ❖ Of more than 2,300 studies & nearly 5,000 patients reviewed, not a single study showed any clinical evidence of antioxidant use interfering with chemotherapy.
- ❖ Data also demonstrate a "clinically valuable reduction in side-effects & often improved responses."
Hart, J. 2012.
- ❖ Antioxidant supplements prevent carcinogenic effects of chemos, protect patient, enhance cytotoxic effect of therapy.
Brodhead, 2009.



TARGETS

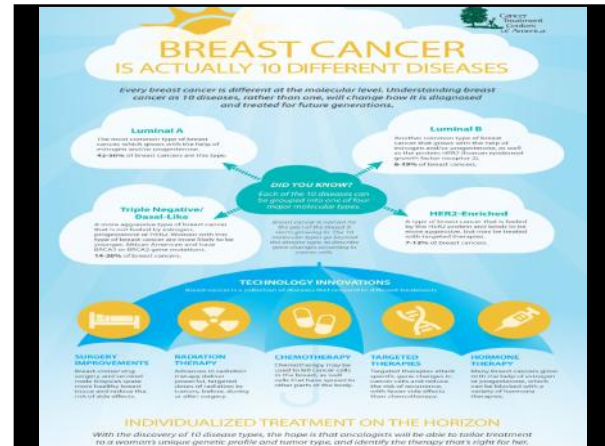
Safety

- ❖ FDA regulates herbs, finished dietary supplements & dietary ingredients under a different set of regulations than 'conventional' foods & drugs.
- ❖ FDA is responsible for action against any unsafe dietary supplement, can remove from market.
- ❖ FDA shares Federal oversight of dietary supplements with FTC.
- ❖ FDA regulates the safety, manufacturing & labeling of dietary supplements.
- ❖ FTC has primary responsibility for regulating the advertising of these products.
Brackett R. 2006.



Targets

- ❖ In addition to chemo, radiation & surgery, specific drugs “targeted therapy.”
- ❖ Target markers on/in cell, interrupt cancer growth pathways at molecular level.
- ❖ Tamoxifen, Herceptin, Arimidex, etc. hit these pathways, provide person-specific treatment.
- ❖ Herbs & supplements also hit these & many other targets, as molecular multi-taskers.



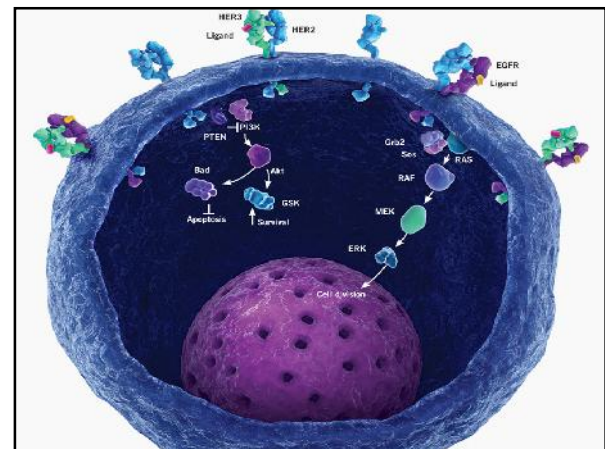
Targets

- ❖ Plants are an important source of macronutrients (fiber, carbohydrates— potatoes, rice, wheat, cassava), plus micronutrients (carotenoids, biotin, folate, lipoic acid, trace minerals & vitamins, phytochemicals).
- ❖ Micronutrient deficiencies shown to damage DNA via the same mechanism as radiation.
- ❖ Degenerative diseases, such as cancer, heart disease & cognitive dysfunction, have been linked to diets low in fruits and vegetables.
- ❖ Animals & humans can not make most of these plant bioactive compounds. Wink, 1999

TARGETED THERAPIES		
DRUG TYPE	TARGET	DRUG
Antiestrogen inhibitor (blocks an enzyme involved in cell growth and DNA synthesis) Monoclonal antibody (impedes activation of cells on receptors) Kinase inhibitor (inhibits signaling by cellular receptors) Vaccine (stimulates production of antibodies specific to tumor proteins, can be used instead of cells or implantable molecules) Other (includes all other inhibitors of other molecules or genes, necessary to at least 100 different molecules)	Estrogen/progesterone receptor protein HER2 receptor protein IGF 1 receptor protein PI3K/AKT/mTOR cell survival pathway VEGF receptor protein (involved in forming tumor blood vessels) Other targets	Anastrozole Exemestane Letrozole Tamoxifen Fulvestrant Trastuzumab Perituzumab Lapatinib NeuVax HER2 IMC 1A2 IGF 1R-2 ETA (gene therapy) AKG 470 hTc 10 EN-0416 BGT226 BEZ235A RAD001 Everolimus Bevacizumab Sunitinib Vandetanib Pazopanib AZ75171 AMG 716 AMG 156 PTC209 Dexamethasone (steroid inhibitor) IL-12/IL-18/IL-15 Dendritic cell vaccines Her2 peptide vaccine ALN-011 (p53 inhibitor) GW591147 (p53 gene therapy) Andi (p53 T cell activation) AZ72751 (PARP protein inhibitor) MG-001 (PARP inhibitor)

Targets

- ❖ Over 25,000 different cancer-preventive “phytochemicals” identified in plants. Anand P., 2008.
- ❖ Many chemo drugs directly plant-derived: vinblastine, vincristine, topotecan & irinotecan, etoposide, ellipticine & teniposide, Taxol.
- ❖ All life intricately tied to plants.

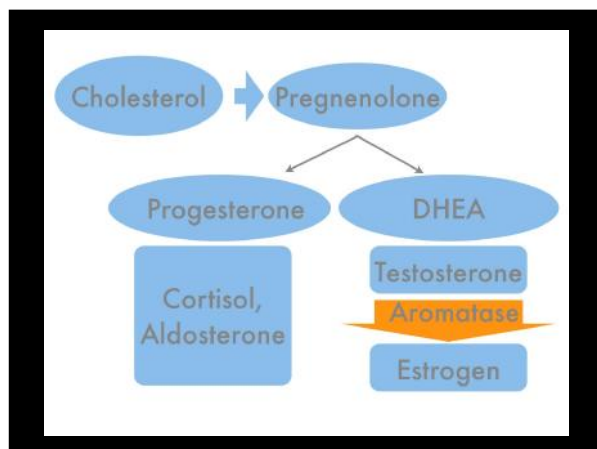
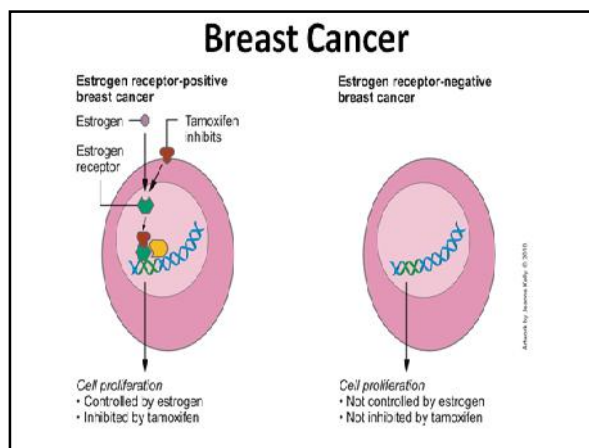


Targets

Breast Cancer Pathways

❖ Aromatase	❖ MIB1
❖ BRCA1 & 2	❖ mTOR
❖ Cathepsin-D & G	❖ NFkB
❖ CAV-1	❖ Nm23 mutation
❖ CD-44	❖ P21 mutation
❖ CK5	❖ P23 mutation
❖ CK7	❖ P27 mutation
❖ CK17	❖ P53 mutation
❖ CK19	❖ PAR-1
❖ COX-2	❖ PARP
❖ E-cadherin	❖ P-cadherin
❖ EGFR	❖ PDGF
❖ ER receptor	❖ PR receptor
❖ HER2/neu	❖ PTEN mutation
❖ HSP	❖ SPARC
❖ IGF-1	❖ Survivin
❖ IL-8	❖ TGF-b1
❖ Ki-67	❖ Topoisomerase II
❖ MEK/ERK	❖ T-PA
	❖ VEGF

Broadhead P., 2009.



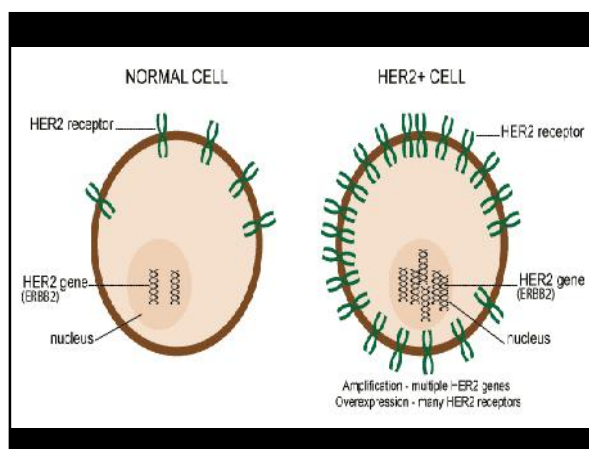
Targets

- ❖ ER/Estrogen receptor: Determines if estrogen & progesterone receptors are present, + or -.
- ❖ Blocked by: Tamoxifen, Faslodex, Raloxifene Alliums, Apples, B Complex, Black Cumin/Nigella, Beans & Legumes, Bromelain, Calcium D-Glucarate, CoQ-10, Crucifers, Exercise, Fermented Foods, Flax, Fiber, Fish Oils/DHA & EPA, Goji Berries, I3c/DIM, IP6, Low BMI, Melatonin, Milk Thistle/Silymarin/Silibinin, Nuts & Seeds, Pomegranate, Quercetin, Red Clover, Reishi, Resveratrol, Sea Vegetables, Soy, Trametes, Vitamin D3, Vitamin E Complex.

Targets

- ❖ Aromatase: Enzyme which helps body make estrogens, especially after menopause.
- ❖ Some found in whole grains, legumes, fruits & vegetables.
- ❖ Blocked by: Arimidex, Femara, Aromasin Black Cohosh, Carrots, Chamomile/Parsley/Celery/apigenin, Citrus/hesperetin, Grapes, Grape Seed/resveratrol Green Tea/EGCG, Licorice/isoliquiritigenin., Mangosteen/g-Mangostin, Nettle Root, Olives, Leaf/oleuropein, Passionflower/Chrysanthemum/chrysin, Pomegranates, Propolis, Red Clover/biochanin-a, Saw Palmetto, Soy/genistein, Walnuts, Berries, Grapes/Myricetin, White Button Mushrooms.

Balunas M, 2010.

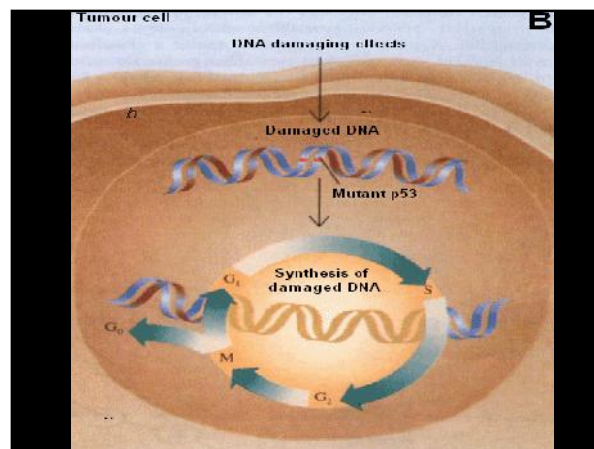
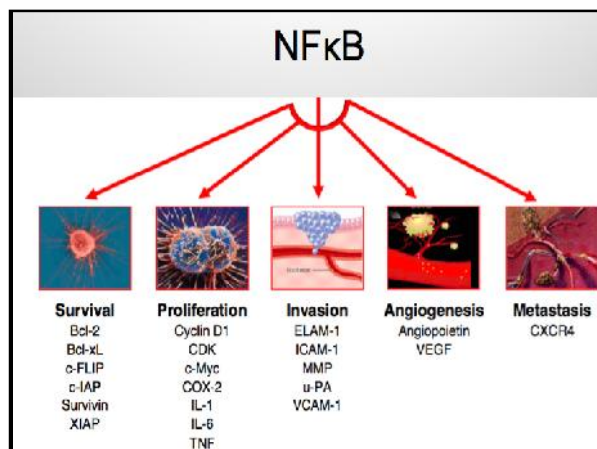


Targets

- ❖ HER2/neu: A growth-promoting protein on breast cancer cells surface.
- ❖ Blocked by: Herceptin
Aloe/emodin, Black Currant, Borage, Buckthorn Bark, Chocolate, Flax Seed, Grapes/resveratrol, Green Tea/EGCG, Olive oil, Omega-6/ Pine Seed/GLA, Onions, Apples/quercetin, Propolis/apigenin, Turmeric/curcumin, Vitamin D, Vitamin E.

Targets

- ❖ NFkB: Cont'd.
- ❖ ...Feverfew/lactones & parthenolides, Ginger/gingerol, Ginkgo, Red Ginseng/ginsenosides, Grapes/resveratrol, Green Tea/EGCG, Guggul/guggulsterone, I3C/DIM, Magnolia Bark/honokiol, Milk Thistle/silymarin, Plums/ursolic acid, Propolis/CAPE & apigenin, Red Chili/capsaicin, Reishi, Soy/genistein, Rosemary, Sage, Turmeric/curcumin, White Willow.



Targets

- ❖ NFkB: A protein complex that controls gene expression, cancer cell immortality.
High levels found in almost all cancers.
- ❖ Blocked by: Drugs in research.
Onions, Apples/quercetin, Andrographis/andrographolide, Ashwagandha/withanolides, Astragalus, Basil/ursolic acid, Black Cumin Seed, Boswellia/boswellic acid, Bromelain, Chinese Skullcap, Citrus Fruit/quercetin, Cloves/eugenol, Coriander/linalool, Cruciferous vegetables, Fennel/ anethole...

Targets

- ❖ p53: Tumor suppressor gene, promotes cell death/apoptosis, mutated in most cancers, 22% of breast cancers.
- ❖ Mutation blocked by: Drugs in research
Andrographis/andrographolide, Ashwagandha/withanone, Astragalus, Berries/ellagic acid, Feverfew/lactones, parthenolides, Folate, Ginger/6-gingerol, Ginseng/ginsenosides, Grapes/resveratrol, Grape Seed/OPC's, Green Tea/EGCG, Melatonin, NAC, OPC's, Paw Paw, Quercetin, Rabdosia/oridonin, Turmeric/curcumin, Vitamin A, Vitamin D, Vitamin E/succinate, Tocotrienols.

Comparative Genome Analysis Identifies the Vitamin D Receptor Gene as a Direct Target of p53-Mediated Transcriptional Activation

Reo Maruyama, Fumio Aoki, Minoru Toyota, Yasushi Sasaki, Hirofumi Akashi, Hiroaki Mita, Hiromu Suzuki, Kimishige Akino, Mutsumi Ohe-Toyota, Yumiko Maruyama, Haruyuki Tatsumi, Kohzoh Imai, Yasuhisa Shinomura, and Takashi Tokino

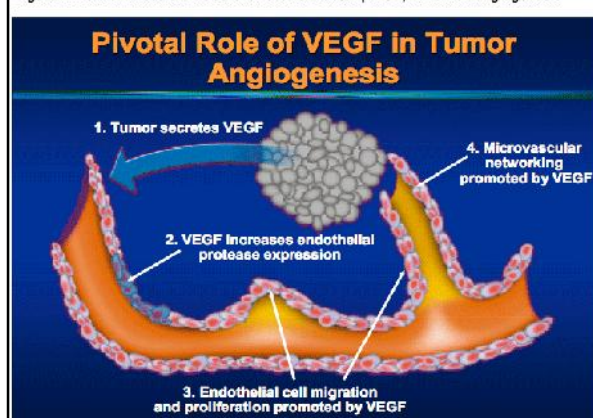
Abstract

p53 is the most frequently mutated tumor suppressor gene in human neoplasia and encodes a transcriptional coactivator. Identification of p53 target genes is therefore key to understanding the role of p53 in tumorigenesis. To identify novel p53 target genes, we first used a comparative genomics approach to identify p53 binding sequences conserved in the human and mouse genome. We hypothesized that potential p53 binding sequences that are conserved are more likely to be functional. Using stringent filtering procedures, 32 genes were newly identified as putative p53 targets, and their responsiveness to p53 in human cancer cells was confirmed by reverse transcription-PCR and real-time PCR. Among them, we focused on the vitamin D receptor (VDR) gene because vitamin D₃ has recently been used for chemoprevention of human tumors. VDR is induced by p53 as well as several other p53 family members, and analysis of chromatin immunoprecipitation showed that p53 protein binds to conserved intronic sequences of the VDR gene *in vivo*. Introduction of VDR into cells resulted in induction of several genes known to be p53 targets and suppression of colorectal cancer cell growth. In addition, p53 induced VDR target genes in a vitamin D₃-dependent manner. Our *in silico* approach is a powerful method for identification of functional p53 binding sites and p53 target genes that are conserved among humans and other organisms and for further understanding the function of p53 in tumorigenesis. *Cancer Res* 2006; 66(9): 4574-83.

Targets

- ❖ VEGF: Cont'd.
- ❖ Blocked by: ...Green Tea/EGCG, Guggul/guggulsterone, Japanese Knotweed/resveratrol, Licorice, Magnolia Seed/honokiol, Milk Thistle/silymarin, Pacific Yew/taxol, taxanes, Parsley, etc/apigenin, Propolis/CAPE, Rabdosia, Selenium, Soy/genistein, Trametes versicolor/PS-K, Turmeric/curcumin, Viscum album/Mistletoe.

Figure 2. Role of Vascular Endothelial Growth Factor (VEGF) in Tumor Angiogenesis



VEGF expression is inhibited by apigenin in human breast cancer cells

Jin X-Y, Ren C-S

Abstract

Objective: To study the effects of apigenin on vascular endothelial growth factor (VEGF) in human breast cancer cells (MDA-MB-231).

Methods: MTT assay was used to detect the cell proliferation inhibitory effect of apigenin on MDA-MB-231 cell. ELISA was used to determine the protein levels of VEGF secreted by MDA-MB-231 cells. RT-PCR was used to detect mRNA levels of VEGF in MDA-MB-231 cells. The protein levels of HIF-1 α , p-AKT, p-ERK1/2, and p53 were detected by Western Blotting.

Results: Apigenin did not inhibit the cell viability of MDA-MB-231 cell. Apigenin reduced the secretion and mRNA levels of VEGF in MDA-MB-231 cells. Additionally, apigenin decreased the expressions of HIF-1 α , p-AKT and p-ERK1/2, but induced the expression of p53.

Conclusion: Apigenin can inhibit VEGF expression in human breast cancer cells, and this may be achieved through decreasing HIF-1 α .

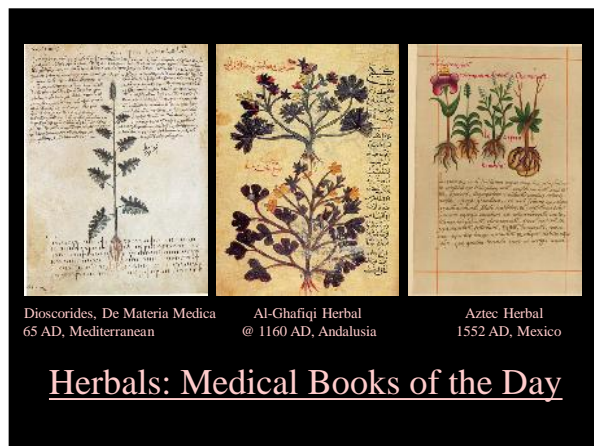
(Apigenin found in Beer, Chamomile, Grapefruit, Onions, Oranges, Parsley, Red Wine, Tea, Saint Johnswort...)

Chinese Journal of Cancer Research, December 2006, Volume 18, Issue 4, pp 306-311.

Targets

- ❖ VEGF/Vascular Endothelial Growth Factor: Cell protein that stimulates blood vessel growth. When overexpressed, cancers grow & spread.
- ❖ Blocked by: Avastin
Andrographis/andrographolides, Artemisia Annu/artemisinin, Basil/ursolic acid, Berries/delphinidin, Chamomile, etc/luteolin, Chinese Scullcap/baicalein, Dong Quai, Elder Berry, Fish Oil/EPA, Flax Seed, Ginger/gingerol, Ginkgo Biloba, Grapes/resveratrol, Grape Seed/OPC's...

HERBS



Herbs

- ❖ 80% of world uses traditional medicine as primary treatment, mostly herbs.
- ❖ 20% - 50% American adults use herbal dietary supplements. HerbalGram, 65: 60-61, 2005.
- ❖ 45,000,000 – 112,000,000+ people (current population 308,000,000), most self-medicating.
- ❖ 72% physicians, 89% RNs use, most recommend supplements (vitamins, herbs, nutrients) to patients. Dickinson A, Boyon N, Shao A. Nutrition Journal 8:29, 2009.
- ❖ Physicians were herbalists until @150 years ago.

Herbs

- ❖ Many/most/all? animals self-medicate with herbs, zoopharmacognosy.
- ❖ Human use since the beginning of history.
- ❖ Oldest form of healthcare, primary medicine.
- ❖ Earliest written record (Sumerian) 5,000+ years.
- ❖ Traditional Chinese Medicine (TCM) 4,000+ years, consistent use.
- ❖ Ayurvedic Medicine of India 2,500+ years, consistent use.
- ❖ @ 20% of modern drugs from traditional medicinal plant compounds.



Herbs

- ❖ Herbal Medicine: “The art and science of using herbs to promote health, and prevent and treat illness.” American Herbalists Guild
- ❖ Involves molecular biology, botany, biochemistry, physiology, nutrition...
- ❖ Co-evolved with plants, basic dialogue: O₂-CO₂
- ❖ 100,000+ isolated “secondary” compounds from plants, to protect from harm, support metabolism. Goossens A et al. A functional genomics approach toward the understanding of secondary metabolism in plant cells. PNAS. 100:14, 8595-8600, 8 July, 2003.
- ❖ Plant compounds bioactive in humans.
- ❖ Few physicians have time to train in herbal medicine, diet, supplements. Need teamwork.

Herbs

- ❖ Black Cohosh: Native to woods of Ontario to GA.
- ❖ Inhibits breast cancer cell growth & inhibits conversion of estrone sulphate to active estrogen. Rice S et al. 2007.
- ❖ Helps control menopausal symptoms, anti-inflammatory, pain-relieving, calming.
- ❖ German study found women with breast cancer who received therapy with Remifemin/Black Cohosh extract, associated with prolonged disease-free survival after 6.5 years. Hennicke-von Zepelin H et al. 2007.
- ❖ Not estrogenic, does not promote breast cancer cell growth. Lupu R et al. 2003.

Herbs

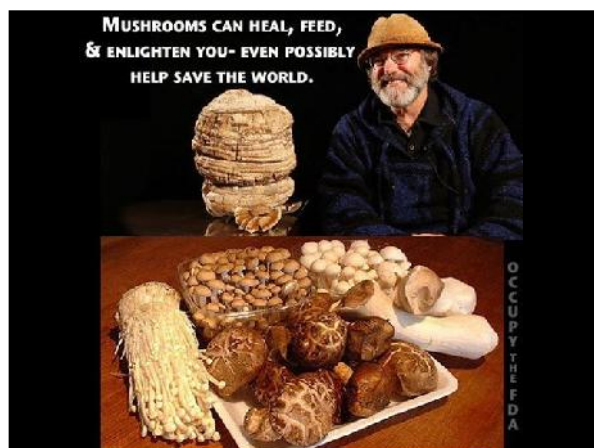
Breast Cancer Preventive/Suppressive Herbs

- | | |
|---------------------------------|-------------------------------------|
| ❖ Andrographis/andrographolides | ❖ Maitake Mushroom |
| ❖ Artemisia Annuua/artemisin | ❖ Magnolia/Honokiol |
| ❖ Bee Pollen, Propolis | ❖ Milk Thistle/silymarin, silibinin |
| ❖ Black Cohosh | ❖ Minor Bupleurum Formula |
| ❖ Bladderwrack | ❖ Mistletoe |
| ❖ Bromelain | ❖ Pacific Yew |
| ❖ Burdock Seed | ❖ Paw Paw |
| ❖ Cat's Claw | ❖ Poke |
| ❖ Chinese Scullcap | ❖ Pomegranate |
| ❖ Coriolus/PSK | ❖ Radosia |
| ❖ Dong Quai | ❖ Red Clover/isoflavones |
| ❖ Feverfew/parthenolides | ❖ Reishi Mushroom |
| ❖ Flax /oil & lignans | ❖ Resveratrol |
| ❖ Ginkgo | ❖ Rosemary |
| ❖ Goldenseal | ❖ Sage |
| ❖ Green Tea/EGCG | ❖ Thuja |
| ❖ Hibiscus | ❖ Trametes, Turkey Tail Mushroom |
| ❖ Limonene | ❖ Turmeric/curcumin |
| ❖ Lycopene | ❖ Violet |
| | ❖ Wild Indigo |
- Broadhead P., 2009. Yance D. 2012.



Herbs

- ❖ Bromelain: Protein & fibrin-digesting enzymes from pineapple juice & stems.
- ❖ Active in both acid & alkaline environments.
- ❖ Strong & direct effects on ER+, tamoxifen-resistant, high-VEGF cell line, preventing further cell growth, inducing cell death. Paroulek A. 2009.
- ❖ Interferes with cancer cell growth by dissolving cancer cell's protein & fibrin covering, preventing metastasis.
- ❖ Enhances effect of many chemos, including 5-FU & Vincristine.
- ❖ Inhibits COX-2 & NFκB, protects p53 gene.



Herbs

- ❖ Milk Thistle/silymarin: Silymarin, a compound from seeds & fruit of milk thistle.
- ❖ Silymarin is liver-protective, anti-inflammatory & anti-metastatic.
- ❖ Interferes with proteins involved in apoptosis.
- ❖ Silymarin treatment *significantly to completely inhibited* breast cancer cell growth in a dose- & time-dependent manner.

Zi X et al. 1998.

Herbs

- ❖ Medicinal Mushrooms– Reishi, Trametes
- ❖ Mushrooms that have been tested in *in vivo* or *in vitro*, with breast cancer inhibitory activity are *Agaricus bisporus* (white button/portabello), *A. brasiliensis*, *Ganoderma lucidum* (reishi), *Grifola frondosa* (hen of the woods/maitake), *Inonotus obliquus* (chaga), *Lentinus edodes* (shiitake), *Leucoagaricus americanus*, *Pleurotus ostreatus*, *Sparassis crispa*, *Trametes versicolor* (turkey tail/trametes), etc. Petrova et al. 2005.

Herbs

- ❖ Milk Thistle/silibinin/silybin: Silibinin is most active constituent in silymarin.
- ❖ Silybinin enhanced absorption of tamoxifen 1.40- to 1.72-fold greater than control group.

Cheul-Seong K et al. 2010.

- ❖ Silibinin synergistic with Adriamycin in reducing growth of ER+ & ER- cancer cells.

Tyngji A et al. 2004.

- ❖ Protective effects of silymarin & silibinin, suggest use for cancer patients to prevent or reduce chemo & radiation-induced toxicity.

Ramasamy et al. 2008.



Herbs

- ❖ Medicinal Mushrooms– Reishi: Mushroom of Immortality, used 2,000+ years.
- ❖ Most significant inhibitory effect of any mushrooms studied on reducing NF- κ B activity in highly invasive breast cancer cells. Petrova R.D., 2005
- ❖ Inhibits growth of ER- & ER+ breast cancer cells. Jiang J et al., 2006.
- ❖ Reduces impact of chronic stress, balances immune response, enhances chemo activity & reduces side-effects. Kuhn M & Winston D, 2008

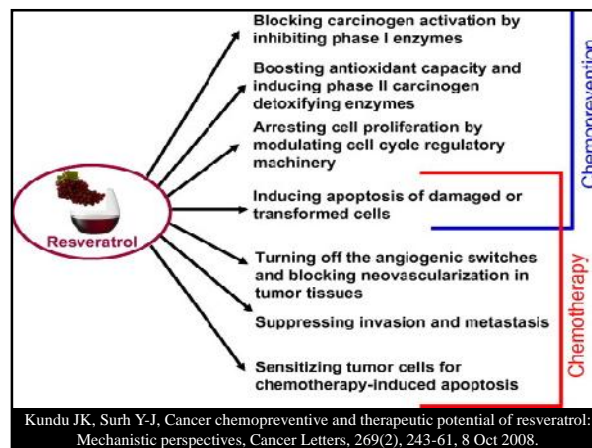


Herbs

- ❖ Resveratrol: Compound found in Grapes, Red Wine & Japanese Knotweed.
- ❖ Made by plant under stress, as protectant.
- ❖ Inhibits aromatase, acts via multiple pathways to cause cell death in many breast cancer cell types.
- ❖ Significantly reduces tumor growth, decreases angiogenesis, increases cell death in ER- ER+ breast cancer tumors in animals compared with controls. Garvin S et al., 2006.

Herbs

- ❖ Medicinal Mushrooms–Trametes versicolor/ Turkey Tail/PS-K/Krestin
- ❖ PS-K/Krestin compound extract used as cancer adjuvant treatment since 1970's in Japan.
- ❖ Used for breast cancer treatment & prevention.
- ❖ Randomized trials given with chemo significantly extended survival in women with ER- cancer.
- ❖ Randomized trial using Krestin with chemo improved the prognosis for breast cancer patients with metastatic tumors, superior to chemo alone. Standish L et al., 2008





Herbs

Turmeric/curcumin sensitizes tumors to chemo:

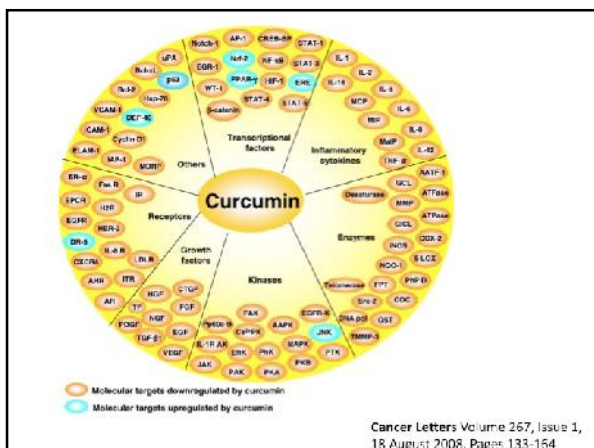
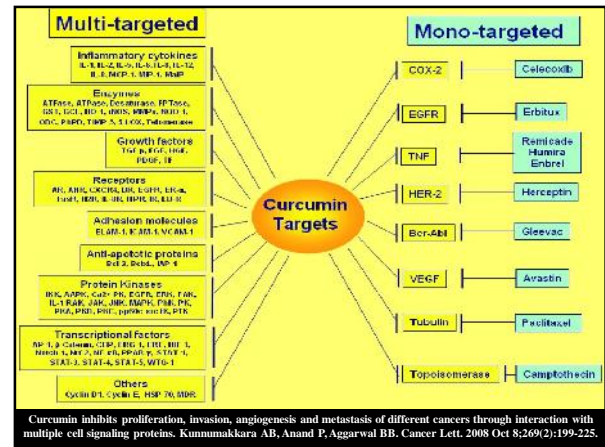
- ❖ 5-FU
- ❖ Bortezomib
- ❖ Butyrate
- ❖ Celecoxib
- ❖ Cisplatin
- ❖ Doxorubicin
- ❖ Etoposide

- ❖ Gemcitabine
- ❖ Melphalan
- ❖ Oxaliplatin
- ❖ Paclitaxel
- ❖ Sulfinosine
- ❖ Thalidomide
- ❖ Vincristine
- ❖ Vinorelbine

Goel Aet al, 2010.

Herbs

- ❖ Turmeric/curcumin: Curcumin, principal active component of turmeric.
- ❖ Targets many cancer pathways, including those helpful in triple negative & HER2+ breast cancer.
- ❖ In animal breast cancer model, curcumin significantly decreased lung metastasis. Aggarwal B et al, 2005.
- ❖ Combined EGCG (from green tea) & curcumin decreased tumor volume by 49% in animal breast cancer models compared to untreated animals. Somers-Edgar T et al, 2008.



SUPPLEMENTS



Integrative Treatment *Supplements*

- ❖ Need more intense dosages to rebalance from serious illness.
- ❖ Take with organic applesauce if trouble swallowing.
- ❖ Split into AM & PM doses, so all day is free.
- ❖ Select powder, liquid, oil, paste forms added to smoothie & reduce pill burden.
- ❖ Plan regimen around patient.



Supplements

Breast Cancer Preventive/Suppressive Supplements

Broadhead P, 2009, Connor J, 2009.

- | | |
|------------------------------|------------------------------|
| ❖ Alpha Lipoic Acid | ❖ Melatonin |
| ❖ Calcium D-Glucarate | ❖ Modified Citrus Pectin |
| ❖ Chrysin | ❖ Potassium |
| ❖ CoQ-10 | ❖ Quercetin |
| ❖ Fish Oils/Omega-3 | ❖ Selenium |
| ❖ Genistein | ❖ Sulforaphane |
| ❖ Honokiol | ❖ Vitamin A/Carotenoids |
| ❖ Inositol Hexaphosphate/IP6 | ❖ Vitamin C |
| ❖ Indole 3Carbinol/DIM | ❖ Vitamin B (Folic, B6, B12) |
| ❖ Iodine | ❖ Vitamin D |
| ❖ L-Arginine | ❖ Vitamin E Tocotrienols |
| ❖ Magnesium Glycinate | ❖ Vitamin K |
| | ❖ Zinc |

Supplements

- ❖ Alpha Lipoic Acid: Made in the body, helps with energy production, protects against stress, suppresses inflammation.
 - ❖ Radiation-protective, protective against chemo-induced neuropathy.
 - ❖ Increases glutathione to aid the liver detox.
 - ❖ Inhibits NFkB, improves glycemic control, inhibits metastasis in breast cancer cell lines.
- Gonca A et al, 2011.
- ❖ Reduces lactic acid, a factor in cancer metastasis.
 - ❖ Synergistic with Omega-3 Oils



Supplements

- ❖ Fish Oil/Omega-3 Oils/DHA & EPA:
- ❖ Oils essential for life, we must obtain from diet.
- ❖ Diet rich in omega-3 fatty acids suppress human breast tumor growth & metastases in animals.

Rose DP et al, 1993.

- ❖ Reduce weight loss in cachexia.
- ❖ Lower the risk of chronic diseases, including heart disease, arthritis & cancer. Edlich S, 2011.
- ❖ Crucial for cell membrane, retina, brain function.

Supplements

- ❖ I3C/DIM (Indole-3-carbinol): Compound in cruciferous vegetables.
- ❖ Converts to bio-active DIM (diindolylmethane).
- ❖ Triggers cell death in breast cancer, reduces chemo multi-drug resistance.
- ❖ Impacts ER+ & ER- breast cancers.
- ❖ Supports liver's breakdown & clearance of estrogen.
- ❖ Inhibits breast cancer bone metastasis.
- ❖ Complexed with vit. E for improved absorption.

Supplements

- ❖ Fish Oil/Omega-3 Oils/DHA & EPA:
- ❖ Improve estrogen metabolism, reduce production of inflammatory compounds, suppresses NFkB.

Lime Pauling Institute, 2012.

- ❖ Stop/slow the growth of all breast cancer cell lines, but were dramatically more effective in inhibiting the triple-negative cells. Nordqvist C, 2013.
- ❖ In early stage breast cancer, women with highest intake of EPA & DHA had 27% reduced risk for recurrence, compared to those with lowest intake. Tabor A, 2011.

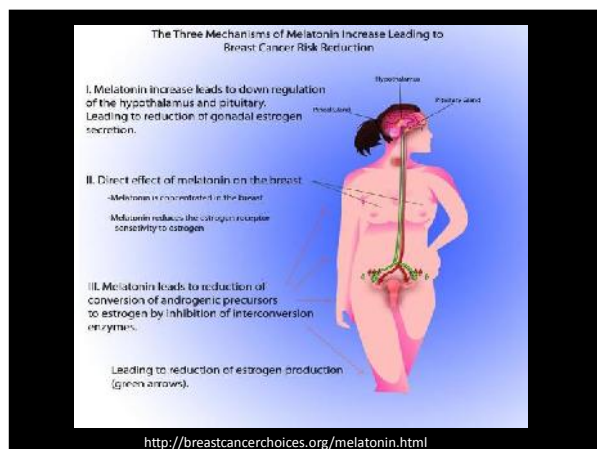


Supplements

- ❖ Melatonin: Hormone made in brain's pineal gland, produced in darkness, inducing sleep.
- ❖ Electric light exposure at night reduces it.
- ❖ Inhibits aromatase, decreases circulating levels of estrogen.
- ❖ Tumor response rate significantly better in patients treated with chemo & melatonin than in those treated with chemo alone. Lisson P, 2002.
- ❖ Reduced frequency of chemo-induced side-effects, including fatigue, low platelets, mouth sores, cardio- & neurotoxicity.

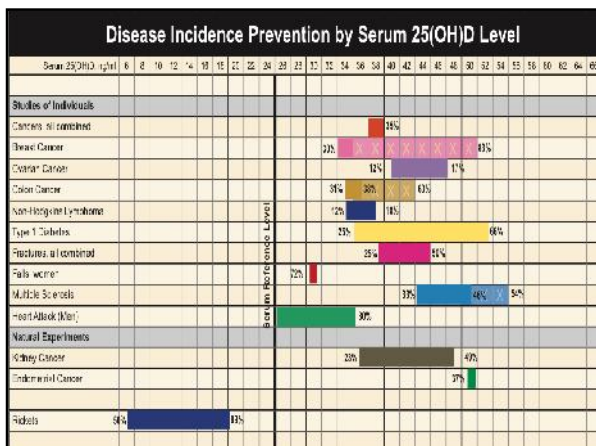
Supplements

- ❖ Vitamin B (B-1,2,3,5,6,7,9,12) & Methyl Donors (SAME, Choline):
- ❖ Work together as a family.
- ❖ Protect DNA, regulate gene expression, protein function & RNA metabolism.
- ❖ Studies show increased intake of vitamin B-12 together with folate & B-6 may reduce breast cancer risk. MSKCC, 2012.
- ❖ Help liver clear estrogen via Phase II detox.
- ❖ Promote brain health, reduce anxiety & depression, balance mood, make red blood cells, provide energy.



Supplements

- ❖ Vitamin D3: Produced by sun's UVB rays, which activate skin & body.
- ❖ Most cells in body have Vitamin D receptors.
- ❖ Studies indicate high levels of vitamin D are associated with a lower risk of breast cancer.
- ❖ Blocks spread & blood supply, promotes death of cancer cells, blocks estrogen-driven cell growth in breasts.
- ❖ Aids in prevention, treatment & outcome of breast cancer. Grant WB, 2011.
- ❖ Rates of breast cancer decrease @ 30% when serum vitamin D levels are >40 vs 20 ng/mL.

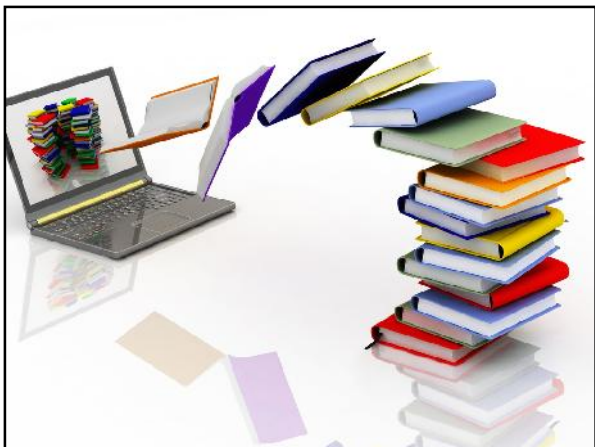


Supplements

- ❖ Vitamin E/Mixed tocopherols (4) & tocotrienols (4):
- ❖ Group of eight fat-soluble compounds.
- ❖ Synergistic with selenium for chemo & radiation protection.
- ❖ Gamma-tocopherols & delta-tocopherols are beneficial in preventing breast & other cancers in animals. Science Daily, 2012.
- ❖ All 4 tocotrienols are able to inhibit the growth & spread of both ER+ and ER- cell types, with delta & gamma tocotrienols the most inhibitory to breast cancer cells. Nesaretnam K et al, 1998.

Supplements

- ❖ Vitamin D3:
- ❖ No vitamin D made in NJ from November through February, since insufficient sunlight UVB for skin activation.
- ❖ Few foods provide sufficient amounts.
- ❖ Toxicity begins at >40,000 iu a day after many weeks of use, reduce dose if high serum calcium.
- ❖ Caution if lymphoma, sarcoidosis or hyperparathyroidism.



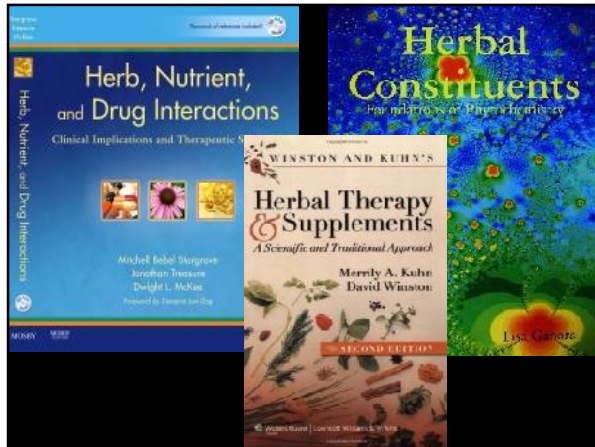
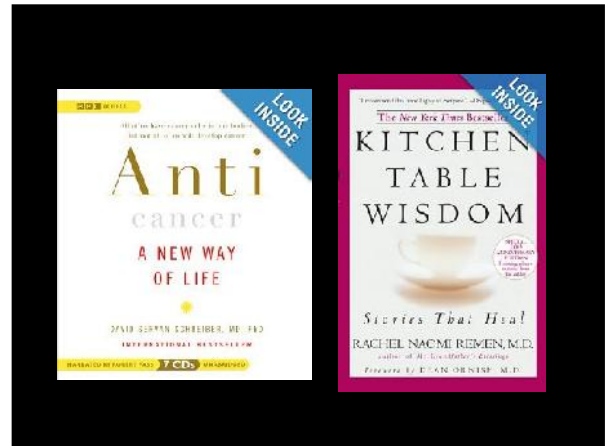
Resources

Organizations

- ❖ **American Cancer Society**
Toll-free number: 1- 800-227-2345
Web site: www.cancer.org/
- ❖ **Centers for Disease Control and Prevention (CDC)**
Toll-free number: 1-800-232-4636 (1-800-CDC INFO)
Web site: www.cdc.gov
- ❖ **National Breast Cancer Coalition**
Toll-free number: 1-800-622-2838
Web site: www.stopbreastcancer.org
- ❖ **National Cancer Institute**
Toll-free number: 1-800-4-CANCER (1-800-422-6237)
Web site: www.cancer.gov
- ❖ **Susan G. Komen for the Cure**
Toll-free number: 1-877-465-6636
Web site: www.komen.org

Resources *Organizations*

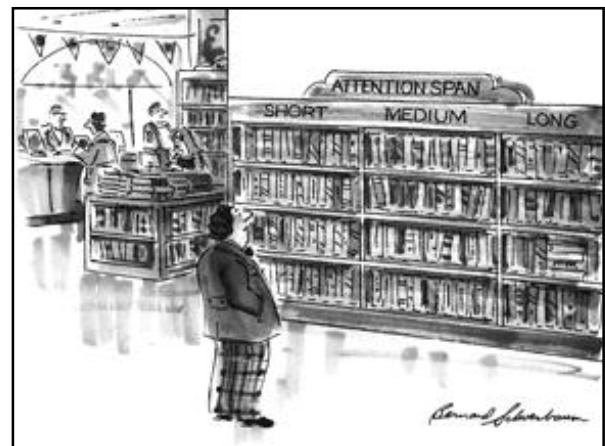
- ❖ **Block Medical Center**
847-492-3040
Web site: www.blockmd.com
- ❖ **Clariant Labs**
Toll-free number 888-443-3310
Web site: www.clariantinc.com/
- ❖ **Natura Health Products**
Toll-free number 888-628-8720 Web site:
www.naturahealthproducts.com
- ❖ **FDA Fake Cancer Cures**
Toll-free number: 888-463-6332
Web site:
www.fda.gov/drugs/guidancecomplianceregulatoryinformation/enforcementactivitiesbyfda/ucm171057.htm



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Resources *Books*

- ❖ **Herbal Constituents**
Lisa Ganora
- ❖ **Herbal Therapy & Supplements**
Merrily Kuhn, David Winston
- ❖ **Herb, Nutrient & Drug Interactions**
Mitchell Stargrove, Jonathan Treasure, Dwight McKee
- ❖ **Kitchen Table Wisdom**
Rachel Naomi Remen
- ❖ **Anti-Cancer: A New Way of Life**
David Servan-Schreiber



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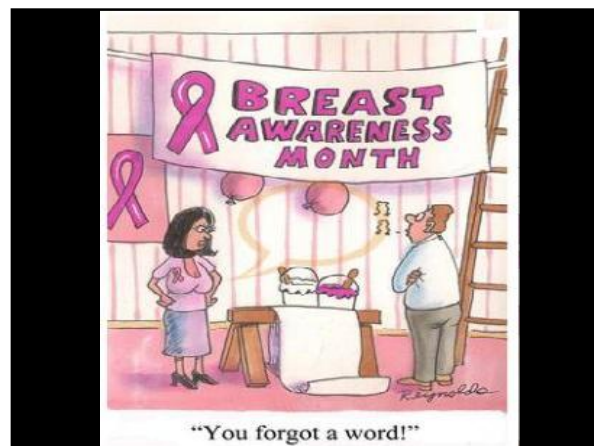
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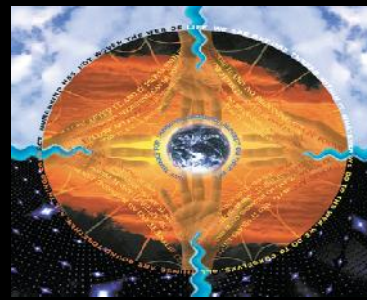
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Thank You!



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