The Truths about Angiogenesis

Leading Edge Veterinary Views on Cancer

December 2nd, 7:30-8:30 PM. EST

Joe Demers, DVM, CVA, CVH

Geoff D'Arcy, D.O.M. (Doctor of Oriental Medicine)

HOST:

Geoff D'Arcy, Lic. Ac., D.O.M.

Geoff has been a practicing Traditional Chinese Medicine (TCM) Herbalist and Acupuncturist for over 30 years. He started Herb-for-Pets over ten years ago at the request of veterinarians looking for herbal pet care options. With his commitment to wellness and natural healing, he has trekked around the world discovering native herbs that have powerful healing properties. With his knowledge he has developed an excellent, well-balanced line of herbal formulas for pets; ranging from common conditions and nutritional support to formulas for serious disease and chronic conditions.

Geoff has authored and co-authored several books on holistic medicine and herbs, including "The Veterinary World Herb Handbook" and "The World Herb Handbook". He has also co-founded two large integrative medical centers in Massachusetts and is now Director of the D'Arcy Wellness Center in Natick, Massachusetts. He is president of D'Arcy Naturals, Inc., a company that produces all natural herbal formulas for people and pets. D'Arcy Naturals offers free eNewsletters for veterinarians at www.naturalpetrx.com.

Guest:

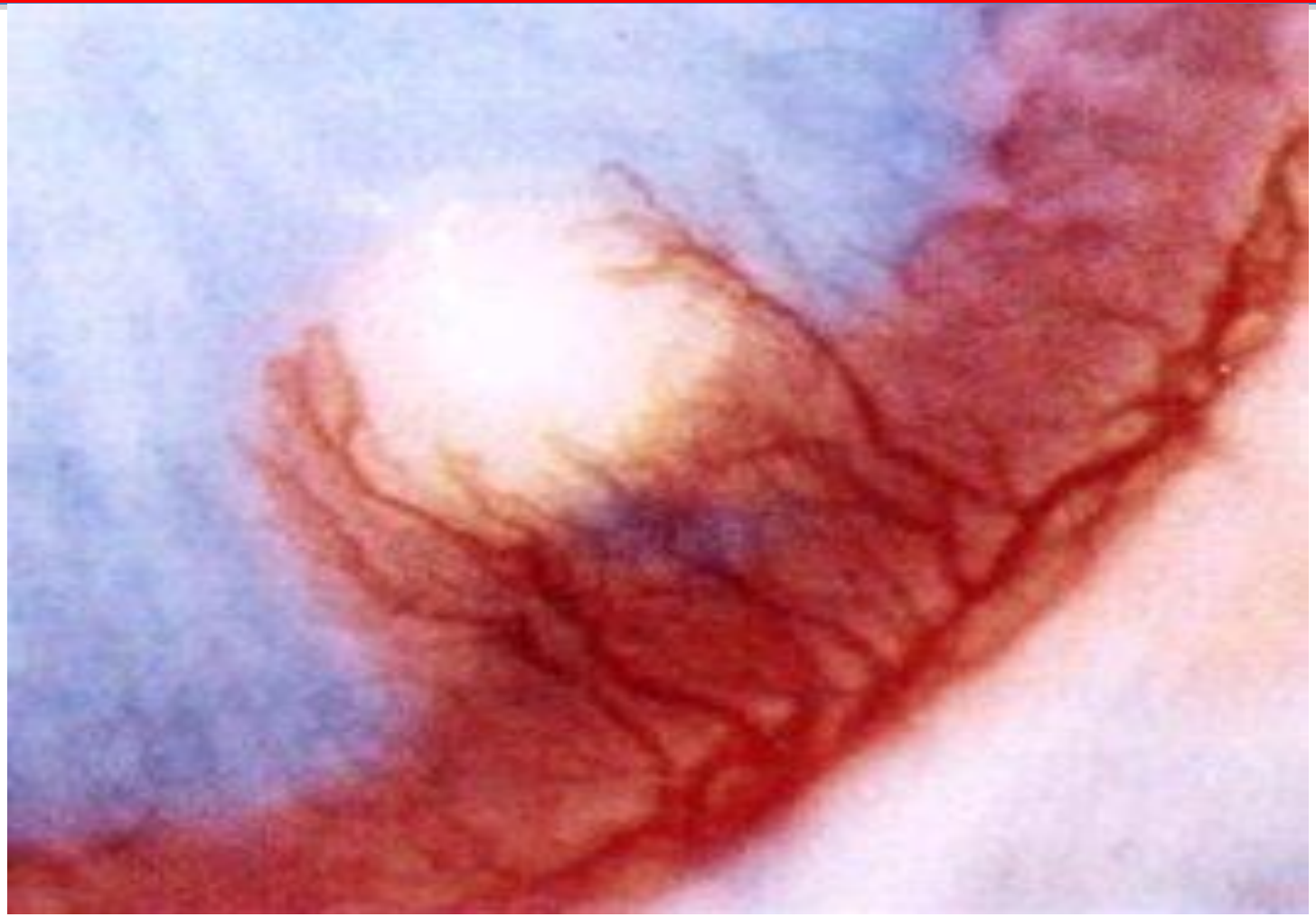
Joe Demers, DVM, CVA, CVH

Dr. Demers practices 100 percent holistic medicine at the Veterinary Acupuncture & Complementary Therapy in Winter Park, FL. He can reached at 407-644-0080.

Dr. Demers is a graduate of Texas A&M University College of Veterinary Medicine and was in general practice in Melbourne, Florida since 1974. He began specializing in holistic medicine in the late 1980's. Dr. Demers holds certification in veterinary acupuncture from AVAS and in veterinary homeopathy from the Academy of Veterinary Homeopathy. He has completed extensive coursework in Chinese Herbal Medicine and became a certified Homeopathic Master Clinician in Human Medicine in the early 1990's. He is past president of the American Holistic Veterinary Medical Association and of the Florida Homeopathic Medical Society. Lecturing on holistic veterinary medicine at various medical meetings has taken him overseas and throughout much of the U.S.
An avid hiker and surfer, he is active with the Surfrider Foundation, a coastal environment protection organization.

Dr Demers' article, A HOLISTIC APPROACH FOR THE TREATMENT OF CANCER
http://www.discount-pet superstore.com/pet_cancer_treatment/images/a_holistic_approach-01.pdf

Angiogenesis
From the Greek:
angio for vessel
genesis for birth



Angiogenesis, new capillary blood vessel growth, as seen by researchers in the laboratory.

Historical Highlights of the Anti-Angiogenesis Field

- **1787** - British surgeon Dr. John Hunter first uses the term 'angiogenesis' (new blood vessel growth) to describe blood vessels growing in the reindeer antler

- **1971** - Surgeon Dr. Judah Folkman hypothesizes that tumor growth is dependent upon angiogenesis. His theory, published in the New England Journal of Medicine, and is initially regarded as heresy by leading physician and scientists.

- **1975** - The first angiogenesis inhibitor is discovered in cartilage by Dr. Henry Brem and Dr. Judah Folkman.

- **1984** - The first angiogenic factor (basic fibroblast growth factor bFGF) is purified by Yuen Shing and Michael Klagsbrun at Harvard Medical School.

- **1989** - One of the most important angiogenic factors, vascular endothelial growth factor (VEGF), is .

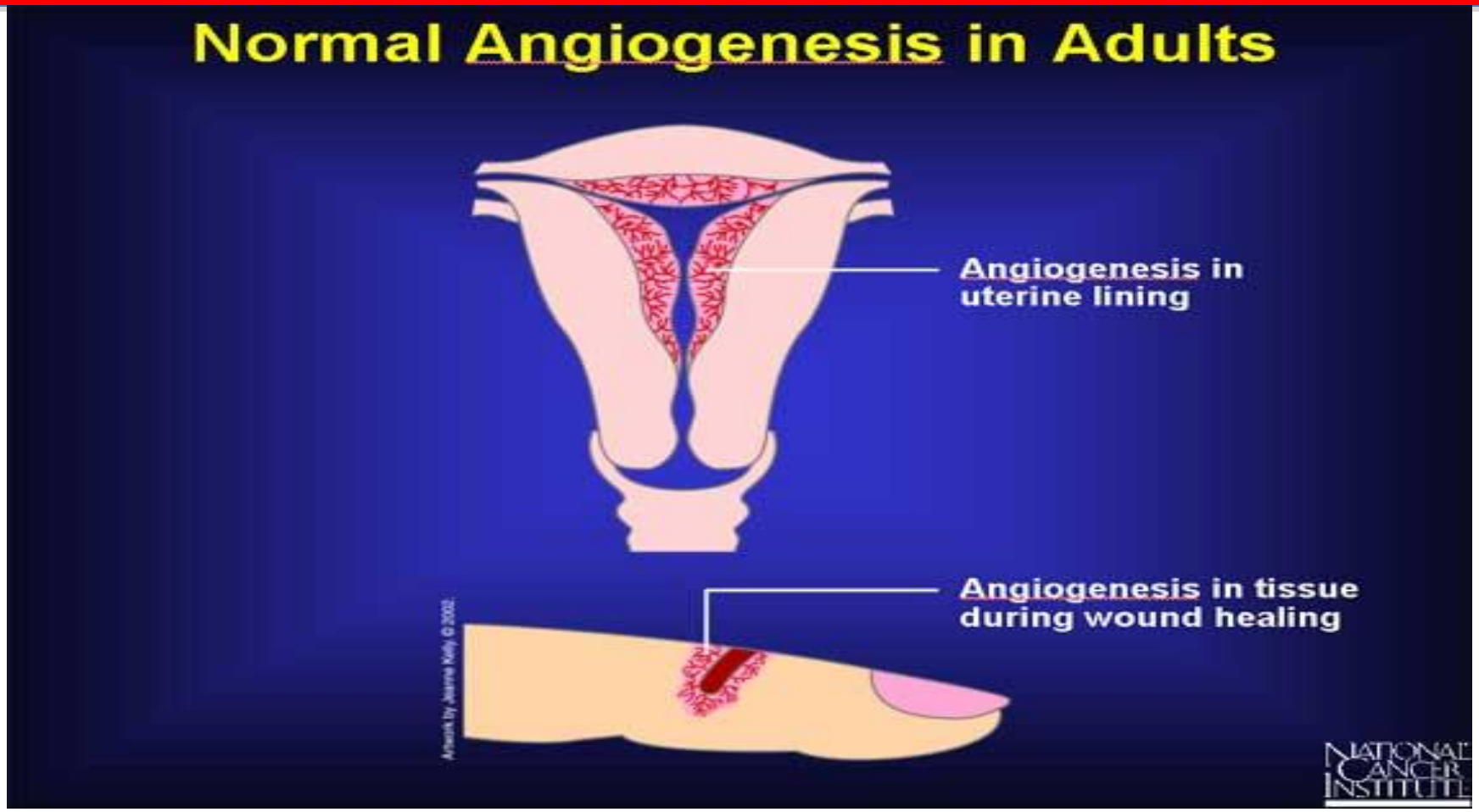
Historical Highlights of the Anti-Angiogenesis Field

- **1997** - Dr. Michael O'Reilly publishes research finding in the journal Nature showing complete regression of cancerous tumors following repeated cycles of anti-angiogenic therapy using angiostatin and endostatin

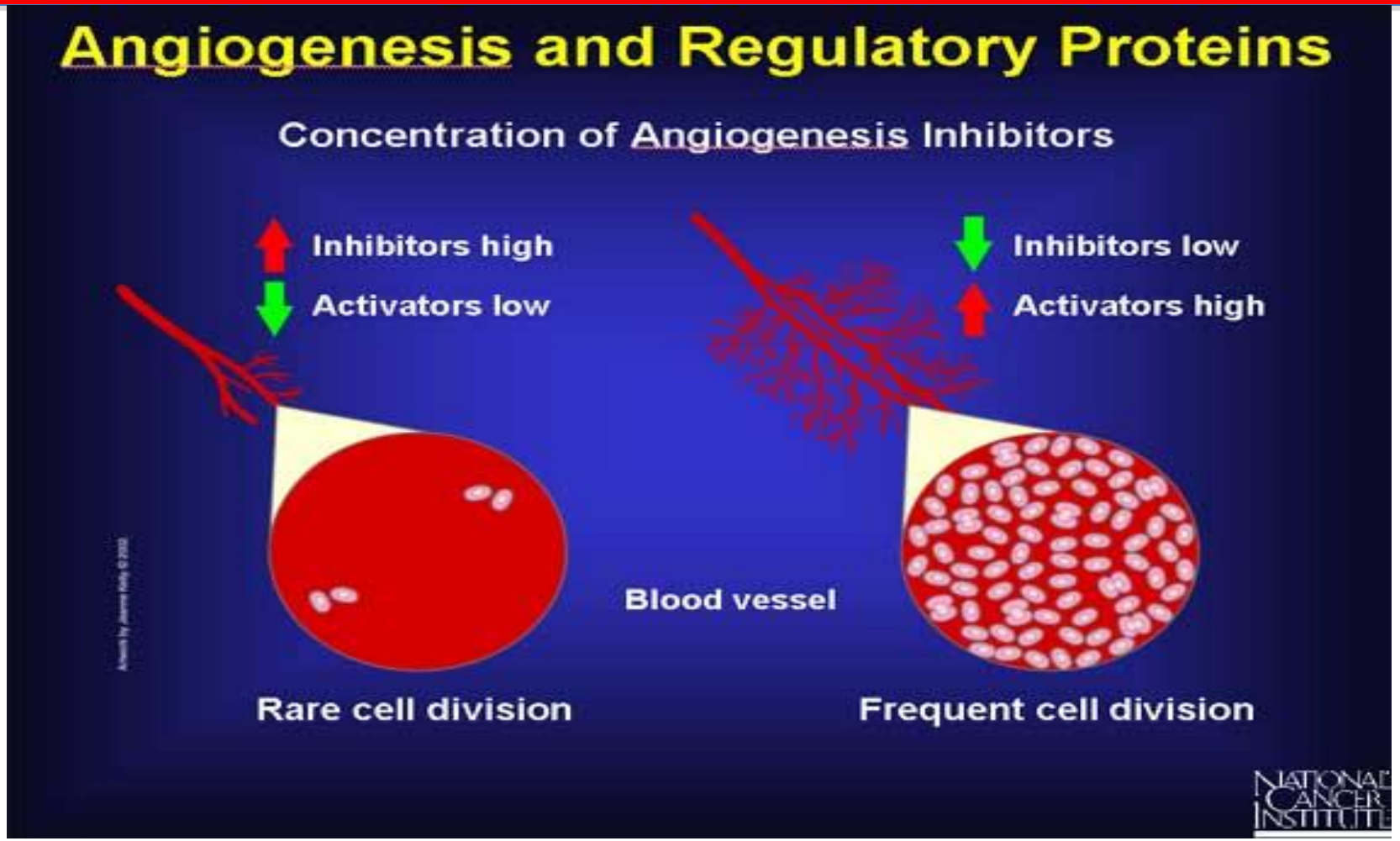
- **1999** - Massive wave of anti-angiogenic drugs in clinical trials: 46 anti-angiogenic drugs for cancer patients; 5 drugs for macular degeneration; 1 drug for diabetic retinopathy; 4 drugs for psoriasis.

- **1999** - Dr. Richard Klausner, Director of the U.S. National Cancer Institute designates the development of anti-angiogenic therapies for cancer as a national priority.

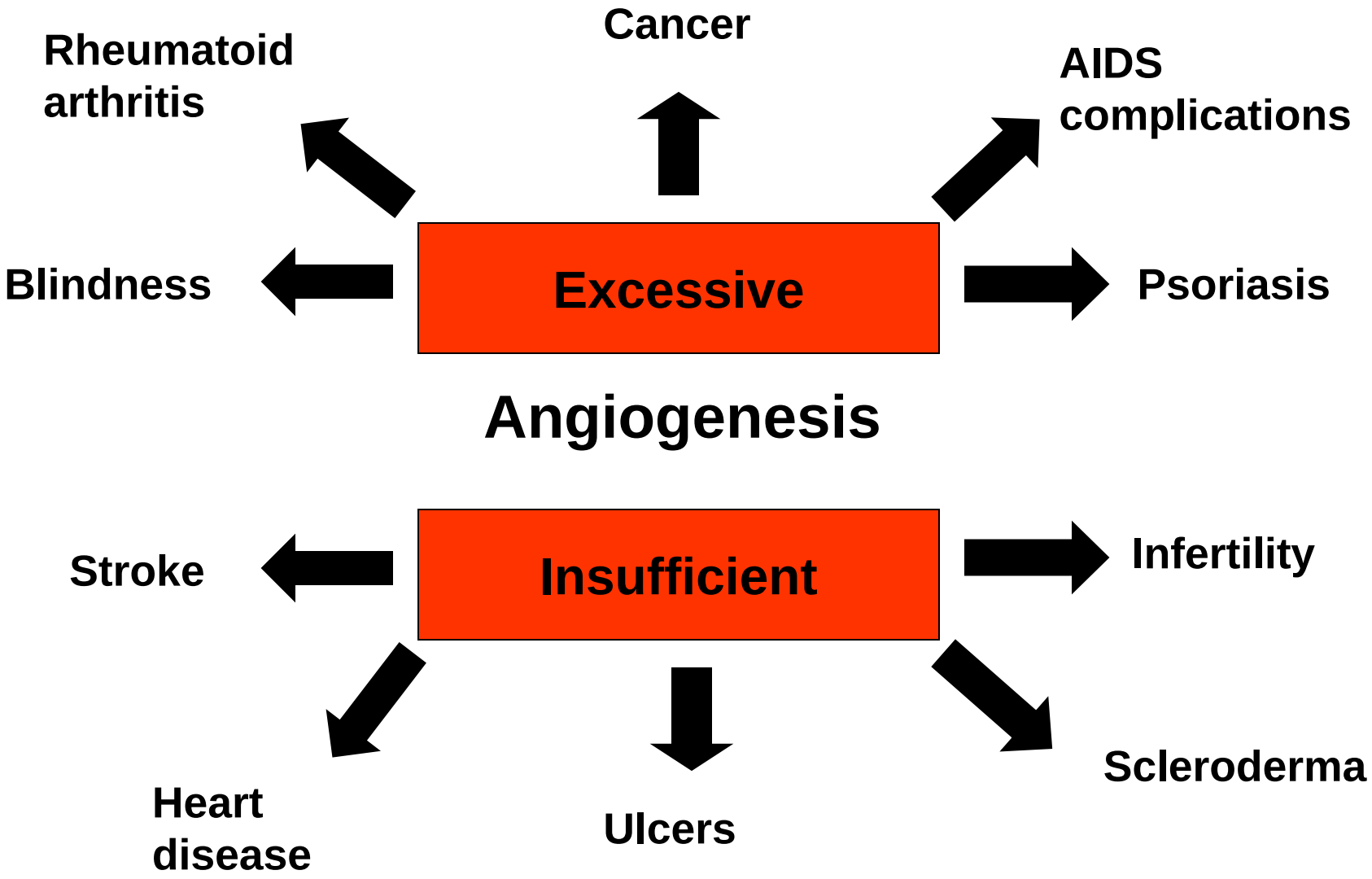
- **2003** - The monoclonal antibody drug Avastin (Bevacizumab) becomes the first anti-angiogenic drug shown in large-scale clinical trials inhibiting tumor blood vessel growth can prolong survival in cancer patients.

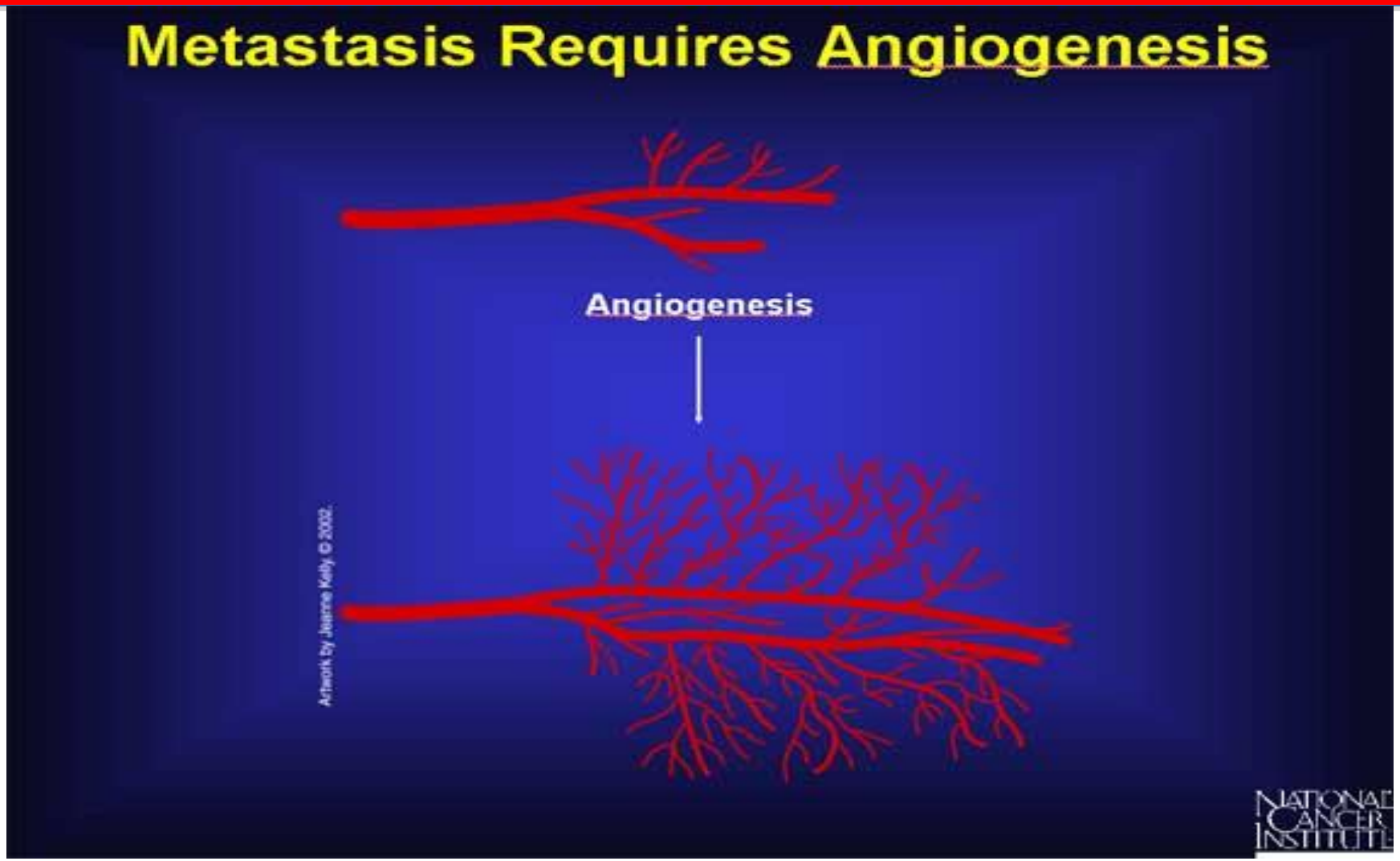


Proliferation of new blood vessels also takes place in adults, although it is a relatively infrequent event. In women, angiogenesis is active a few days each month as new blood vessels form in the lining of the uterus during the menstrual cycle. Also, angiogenesis is necessary for the repair or regeneration of tissue during wound healing.

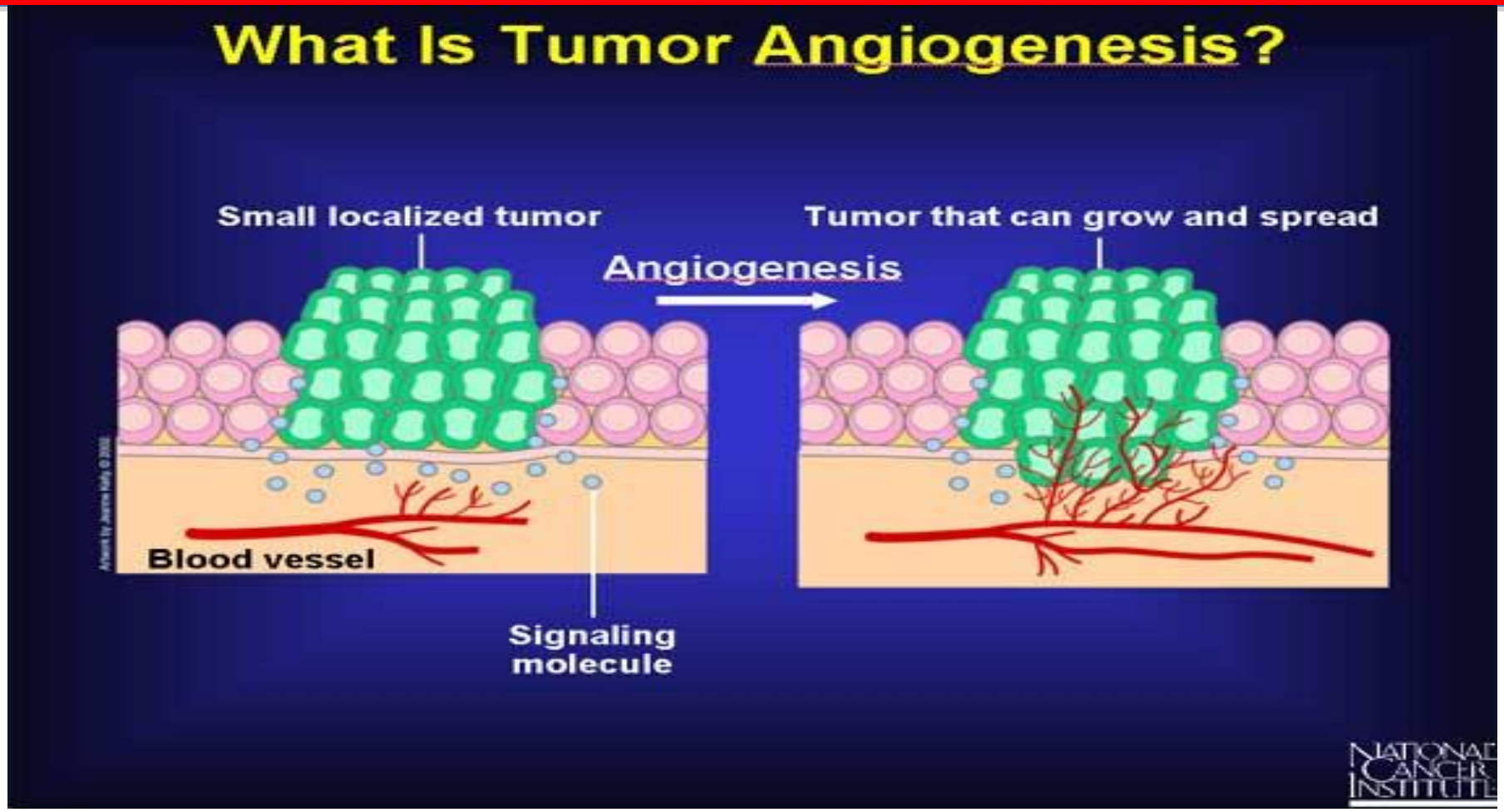


Angiogenesis is regulated by both *activator* and *inhibitor* molecules. Normally, the inhibitors predominate, blocking growth. Should a need for new blood vessels arise, angiogenesis activators increase in number and inhibitors decrease. This prompts the growth and division of vascular endothelial cells and, ultimately, the formation of new blood vessels.


Cancer
Rheumatoid arthritis
AIDS complications
Blindness
Excessive
Psoriasis
Angiogenesis
Stroke
Insufficient
Infertility
Heart disease
Ulcers
Scleroderma

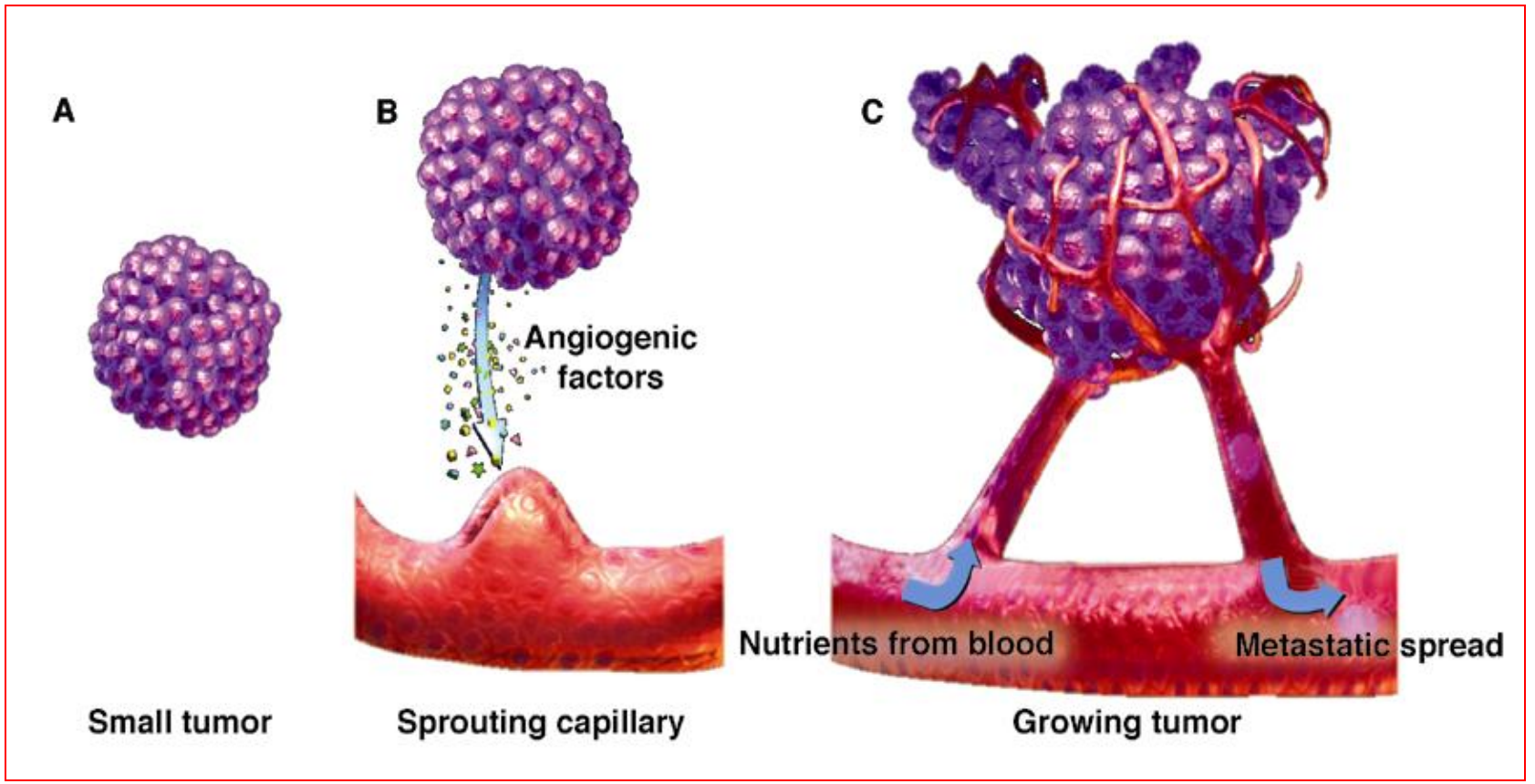


Cancer researchers studying the conditions necessary for cancer metastasis have discovered that one of the critical events required is the growth of a new network of blood vessels. This process of forming new blood vessels is called *angiogenesis*.



Tumor angiogenesis is the proliferation of a network of blood vessels that penetrates into cancerous growths, supplying nutrients and oxygen and removing waste products. Tumor angiogenesis actually starts with cancerous tumor cells releasing molecules that send signals to surrounding normal host tissue. This signaling activates certain genes in the host tissue that, in turn, make proteins to encourage growth of new blood vessels.

Tumor Angiogenesis and Neovasculature



A), Tumors less than 1 mm^3 receive oxygen and nutrients by diffusion from host vasculature. B), Larger tumors require new vessel network. Tumor secretes angiogenic factors that stimulate migration, proliferation, and neovessel formation **by endothelial cells in adjacent established vessels.**
C), Newly vascularized tumor no longer relies solely on diffusion from host vasculature, facilitating progressive growth.

Preventing Cancer Growth

Common method is by destroying the cancerous tumor by:

1) Surgery,

2) Radiotherapy

3) Chemotherapy (Usually done together).

Limitations

- Surgery – cannot eliminate all cancerous cells.
- Radiotherapy (X rays) – radiation will kill some of the normal cells too.
- Chemotherapy by medication or drugs to reach cancerous cells – many side effects including hair loss or drop in immune cell, organs complication.

4) Anti-Angiogenesis is a new approaches by attacking the tumor's blood supply thus depriving it food. But anti-Angiogenesis Metronomic has to be a continuous process. The good news is that a significant quantities of some ….**Anti-Angiogenesis molecules are present in fruits and vegetables.**

Angiogenesis Inhibitors

- **Other angiogenesis inhibitors have been found in nature** - in green tea, broccoli sprouts, maqui berries, fungi, mushrooms, assorted greens, Chinese cabbage, tree bark, shark tissues and many other substances.
- **Manufactured synthetically** Still other angiogenesis inhibitors have been manufactured synthetically in the laboratory.
- **Some FDA-approved medicines** have also been "re-discovered" to have anti-angiogenic properties.

Anti-Inflammatory Phyto Nutrients

- *Healthy, healing inflammatory processes, act as chemical fertilizers, to promote cell reproduction, are hijacked into growing micro-tumors and tumors.*

- "By encouraging immune cells to produce inflammation, the tumor gets the body to make the fuel needed for its own growth and invasion of surrounding tissues" (Anticancer David Servan-Schreiber MD, PhD)

- "(cancer) patients with the lowest level of inflammation were twice as likely to live through the next few years" (*Anticancer,* David Servan-Schreiber MD, PhD)

- Several studies show people who take anti-inflammatory medication (Advil, Nuprofen,ibuprofen etc.) are less vulnerable to cancer.

- "It is as if the body's chronic underlying state of inflammation were the determining factor of health" (*Anticancer,* David Servan-Schreiber MD, PhD)

NF-kappa B, the Black Knight of Cancer

"The growth and spread of cancer cells relies to a large extent on a single pro-inflammatory factor secreted by the tumor cells– a sort of black knight without which tumors become much more fragile. It also prevents them from creating metastases"

NF kappa B: Linking Inflammation and Immunity to Cancer Development and Progression. 2005, Karin M. & Greten F.R.

"Almost every cancer preventative is an inhibitor of NF kappa B

Albert Baldwin PhD., Profesor at the University of North Carolina

Hypothesis!

NF-κB activation is a major mediator of inflammation in most diseases & inhibition of NF-κB activation can suppresses inflammation

NF-kappa B (NF-kB)

master switch to regulate more than 300 genes

- nuclear factor-kappa B (NF-kB), a powerful master switch known to regulate expression of more than 300 genes that promote an abnormal inflammatory response that leads to a variety of disorders, these transcription factors are persistently active in a number of disease states including
- heart disease
- cancer
- arthritis
- immune responses
- inflammatory responses
- chronic inflammation, IBS, chron's, ulcerative colitis
- developmental processes, cellular growth, and apoptosis
- asthma
- neurodegenerative diseases

the White Knights of Cancer Phyto Nutrients fight NF-kappa B

There are many natural molecules know to block and act against NF-kappa B,

- catchechins in **green tea**,
- Sulphuraphane in **broccoli sprouts**
- curcumin in **turmeric**,
- resveratol in **grapes**
- andrographolide in **andrographis**
- ingredients in **maqui berry**

Strengthen the "Terrain" of our Animals!

Cancer is the leading cause of death in pet cats and dogs in the United States. As many as 50% of pets die of cancer.

One New definition of cancer: (Nature, 2007, reported in Anticancer by David Servan-Schreiber MD, PhD)

"Cancer can be understood as a breakdown in the balance between cells that have always been "dormant" in the body and natural defenses that normally keep them at bay". This Study highlights how important it is to nourish and strengthen our *"terrain". Cancer arises only from those cancer cells that find fertile 'terrain' in which to grow"*

Complimentary Medicine More Mainstream – Growing numbers of veterinarians are turning to supplements for treating pets with cancer, which may not be able to tolerate traditional drug therapies.

Strengthen the "terrain" of the animal with natural, anti-angiogenic foods and dietary supplements!

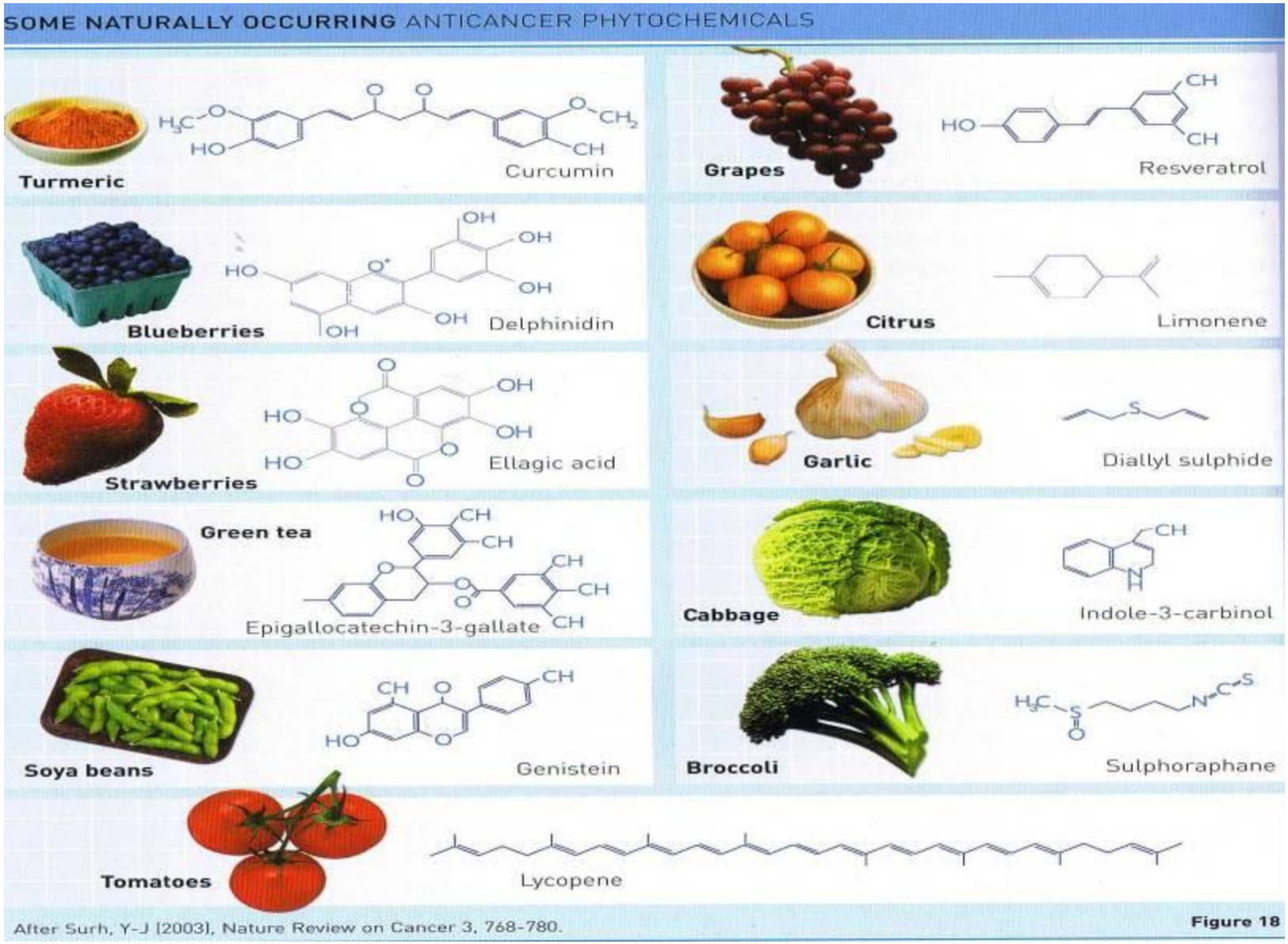
At the core of holistic pet care is the notion that the best way to cure an animal is to help the animal cure itself.

The Power of Phyto-Nutrients in our Diet

- **Green Tea**– 3 cups a day 50% reduction **reduced risk of relapse of Breast cancer or Prostate cancer**
- **Simple changes in Nutrition and exercise,**
  - **reduced cancer by 40% according to a World Cancer Fund that synthesized several thousand studies.**
  - **60% reduction in cancer mortality (20,000 people followed over 11 years)**
  - **Increased life expectancy by 14 years.**
  - **68% decreased mortality in breast cancer spread to lymph.**

Source: *Anticancer*, David Servan-Schreiber, MD, PhD.

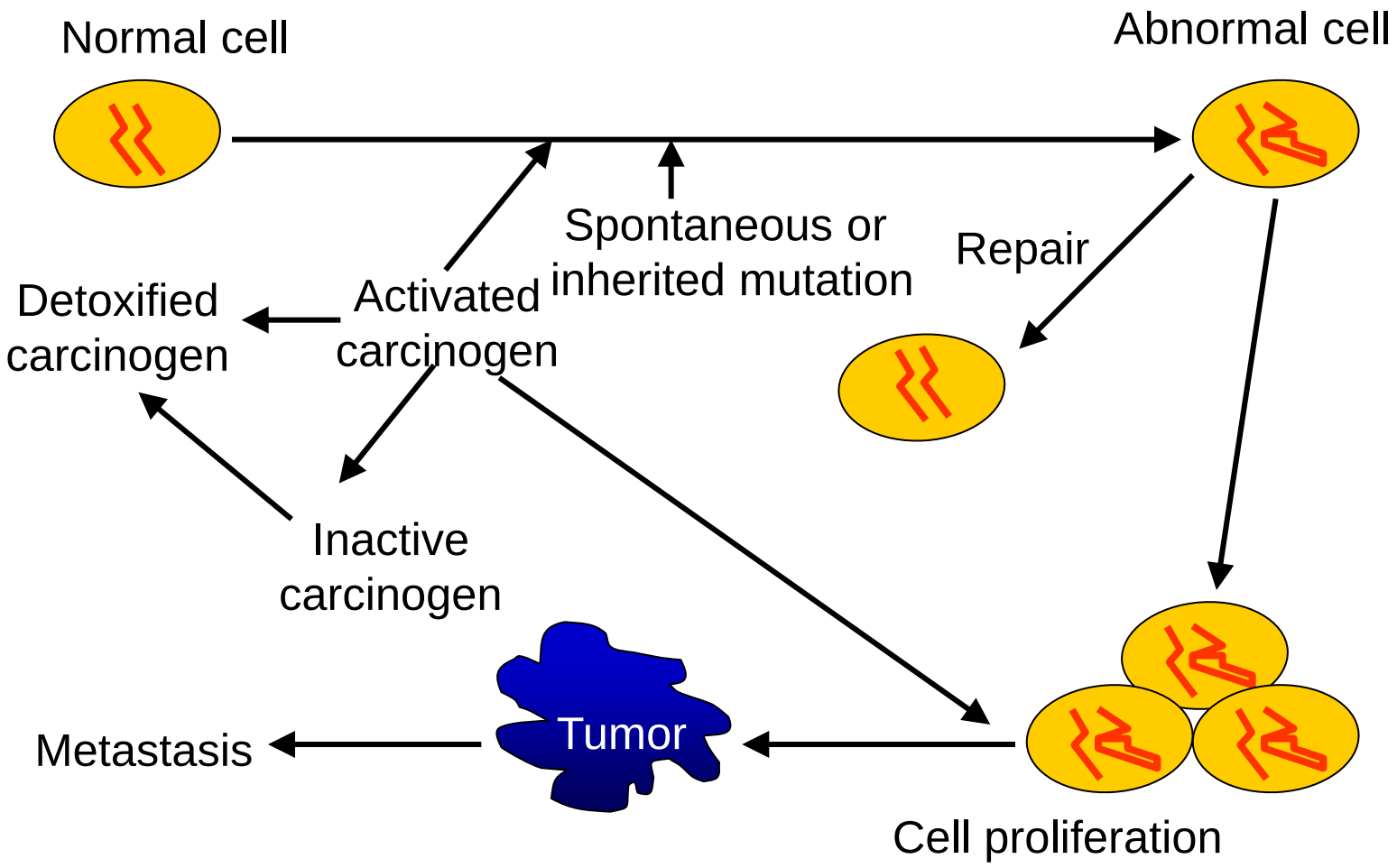
Anticancer compound present in fruits and vegetables, phytochemicals are the most important



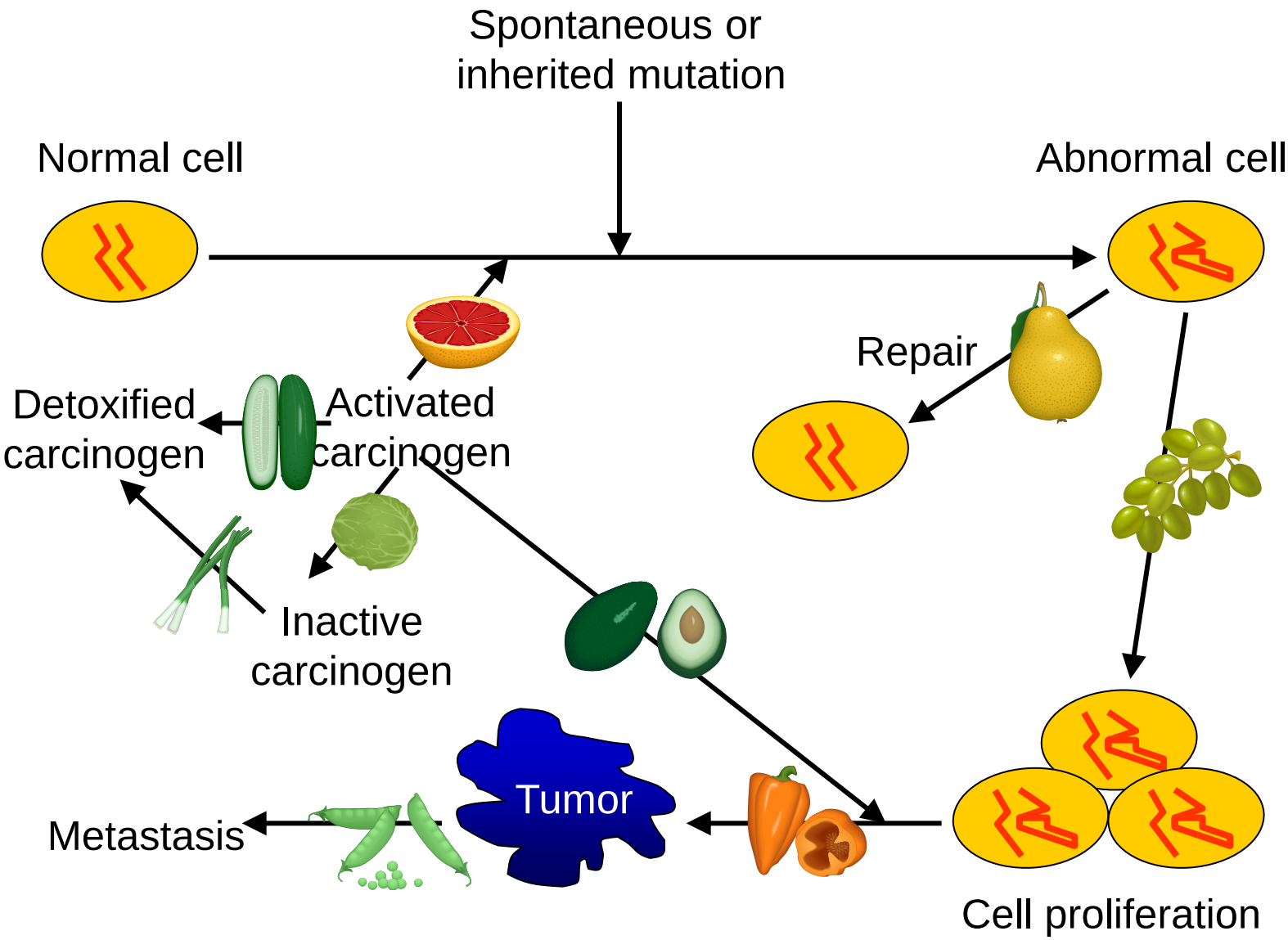
After Surh, Y-J (2003), Nature Review on Cancer 3, 768-780.

Figure 18

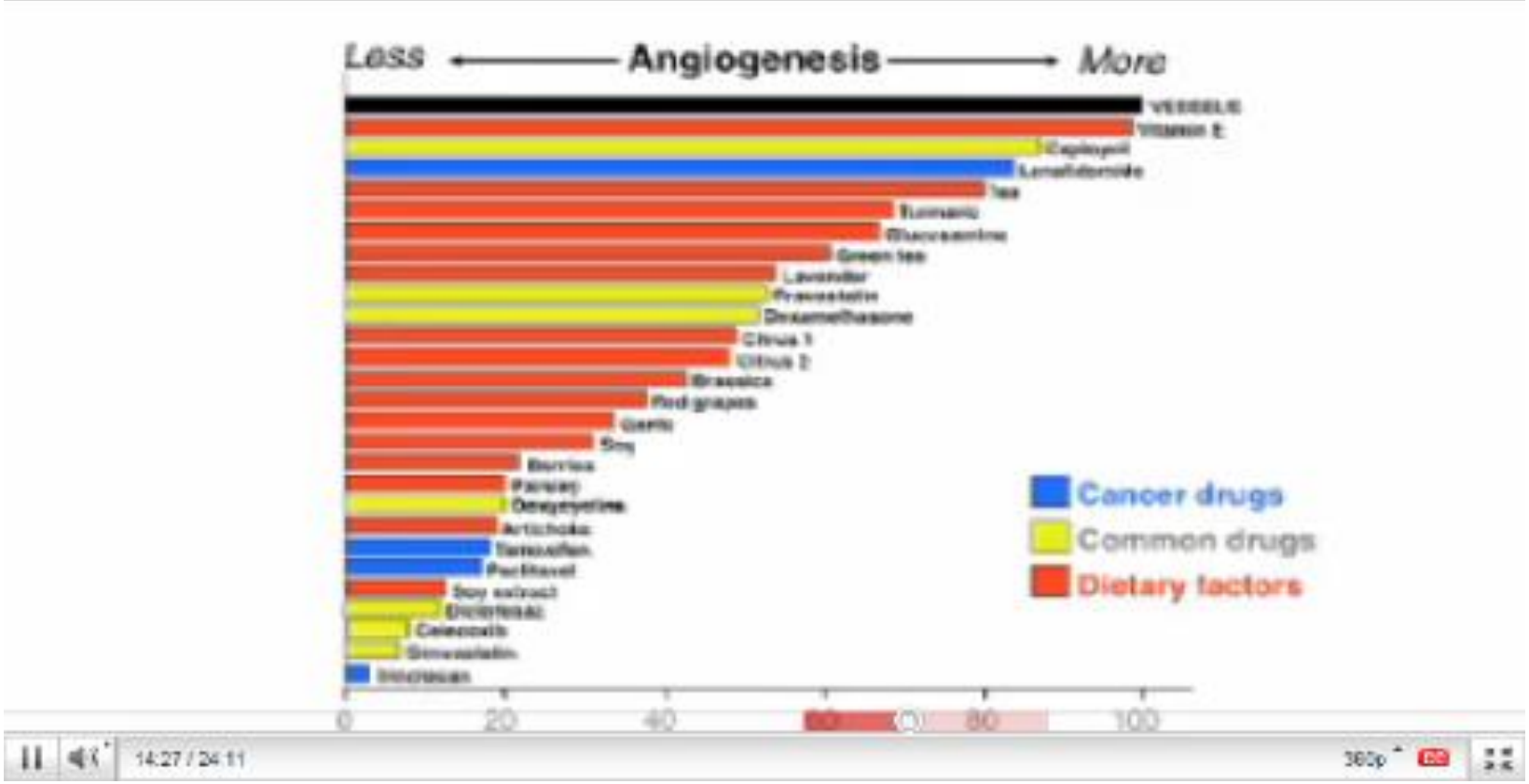
The Cancer Process



How fruits and vegetables can help prevent cancer!

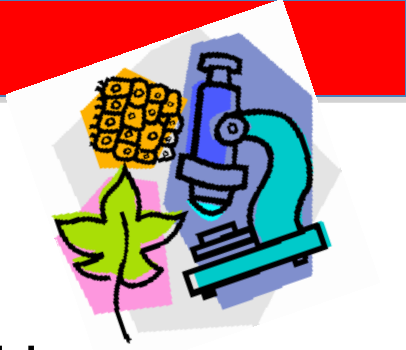


Anti-Angiogenic Phyto-Nutrients out-perform drugs



Dr Li's TED Talk on Angiogenesis http://www.youtube.com/watch?v=C_5Z31mUmtc

Why Nutritional Supplementation?



Even with good quality commercial pet food Nutritional Supplementation is great nutritional insurance, protecting pets from poor brand choices and imbalanced foods.

POSSIBLE SUPPLEMENTS

- Greens concentrated
- Broccoli Sprouts (7-10 day old: High SGS)
- Medicinal Mushrooms
- Maqui, polyphenols (with Andrographis and Turmeric)

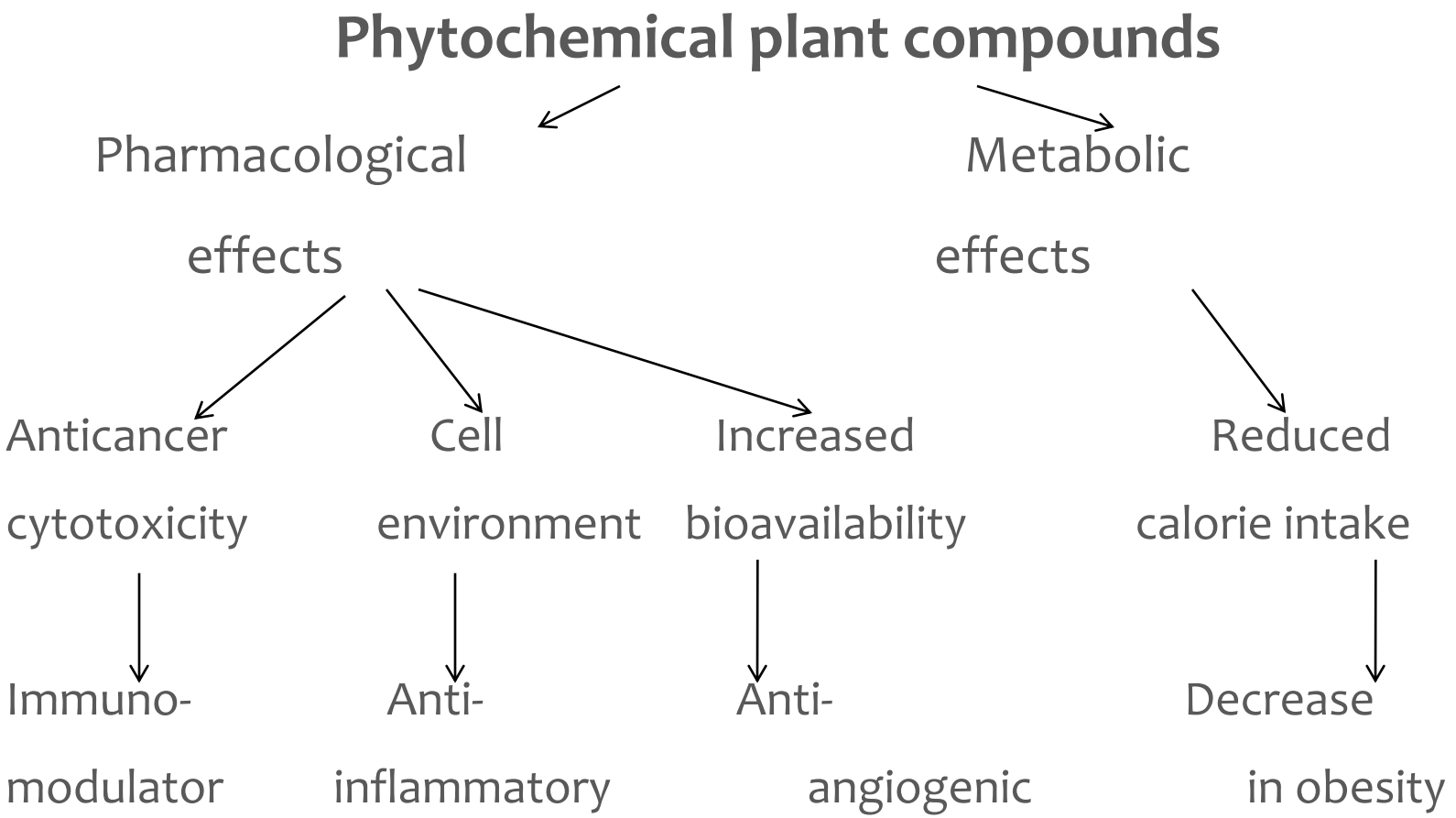
Cancer Prevention Food Study

Foods	# of participants	Type of cancer	Reduced risk (%)
Cruciferous vegetables	47,909	Bladder	60
	4,309	Lung	30
	29,361	Prostate	50
Tomatoes	47,365	Prostate	25
Citrus fruits	521,457	Stomach, esophagus	25
Green vegetables (dietary folate)	81,922	Pancreas	75
	11,699	Breast (post-menopause)	44
Lignans	58,049	Breast (post-menopause)	28
Carrots	490,802	Head and neck	46
Apples, pears, plums	490,802	Head and neck	38
Green tea	69,710	Colorectal	57
Vegetable oils and nuts	295,344	Prostate	32

Source: Béliveau, R., and Gingras, D. Eating Well, Living Well: An Everyday Guide for Optimum Health. McClelland & Stewart Ltd., Toronto, 2009.

Watch Dr. William Li's video, President of the Angiogenesis Foundation, present a new way to think about treating cancer and other diseases: anti-angiogenesis, preventing the growth of blood vessels that feed a tumor. http://www.youtube.com/watch?v=C_5Z31mUmtc

Cancer Prevention Approach



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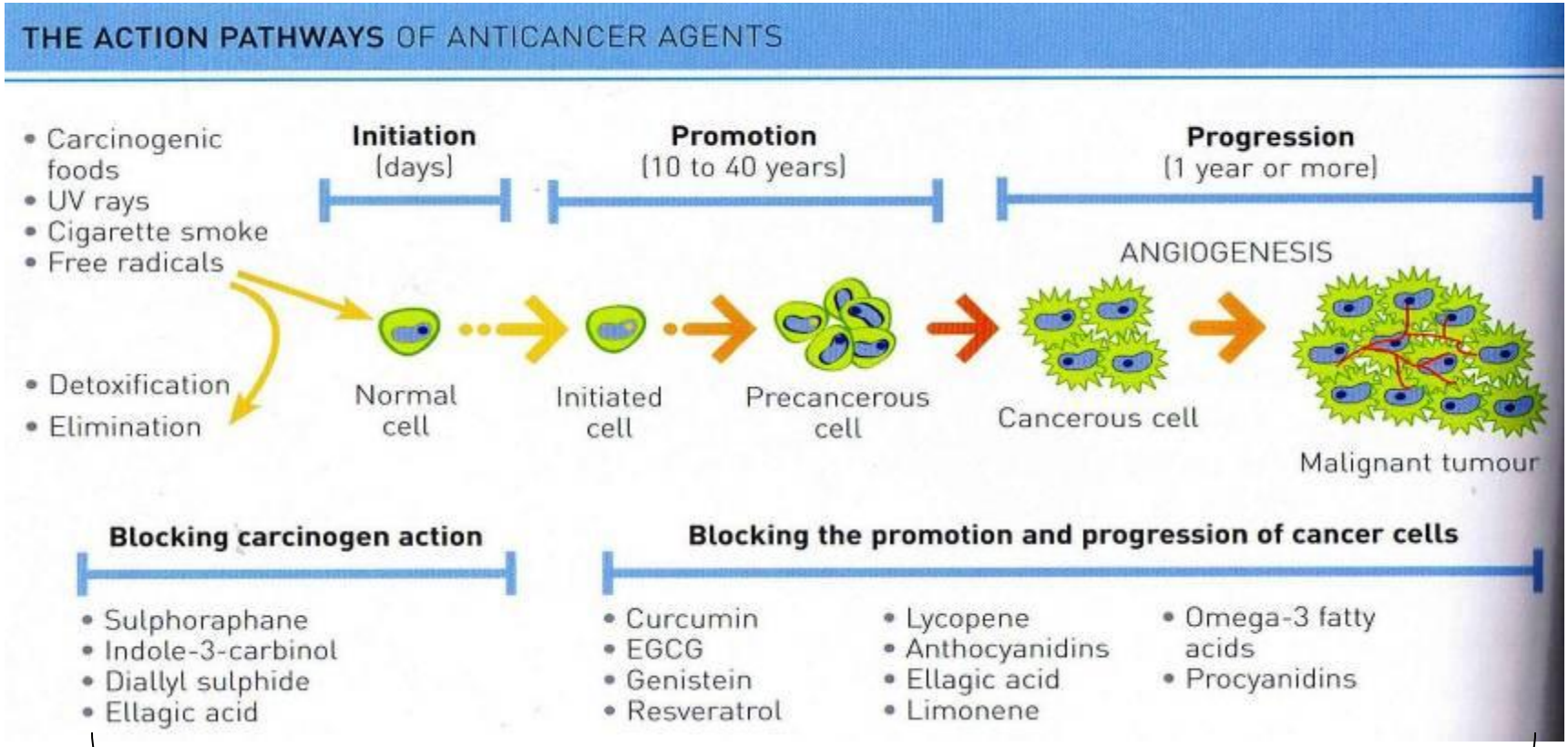


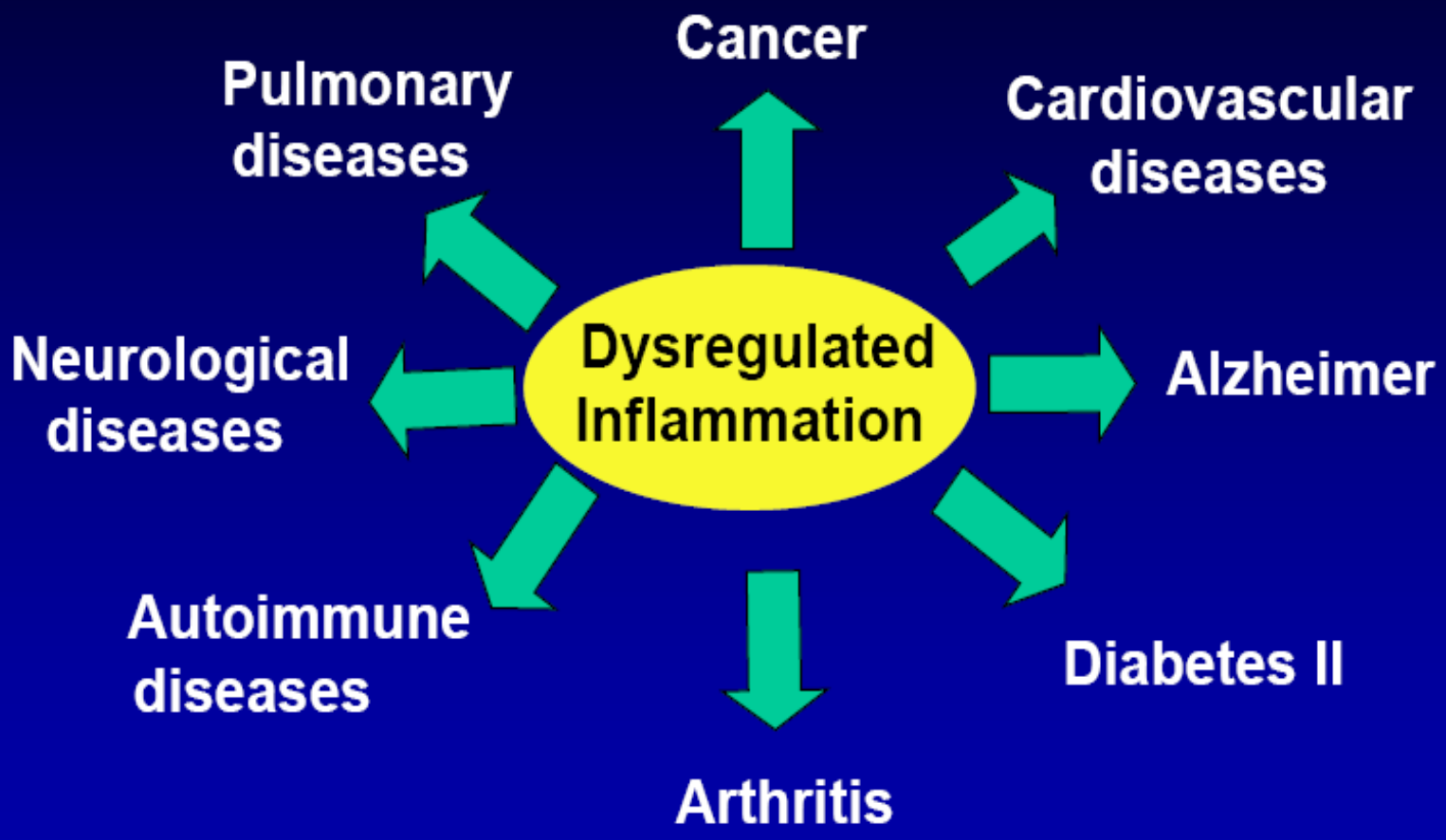
Anticancer compound present in fruits and vegetables, **phytochemicals** block carcinogen action, block the promotion and progression of cancer cells

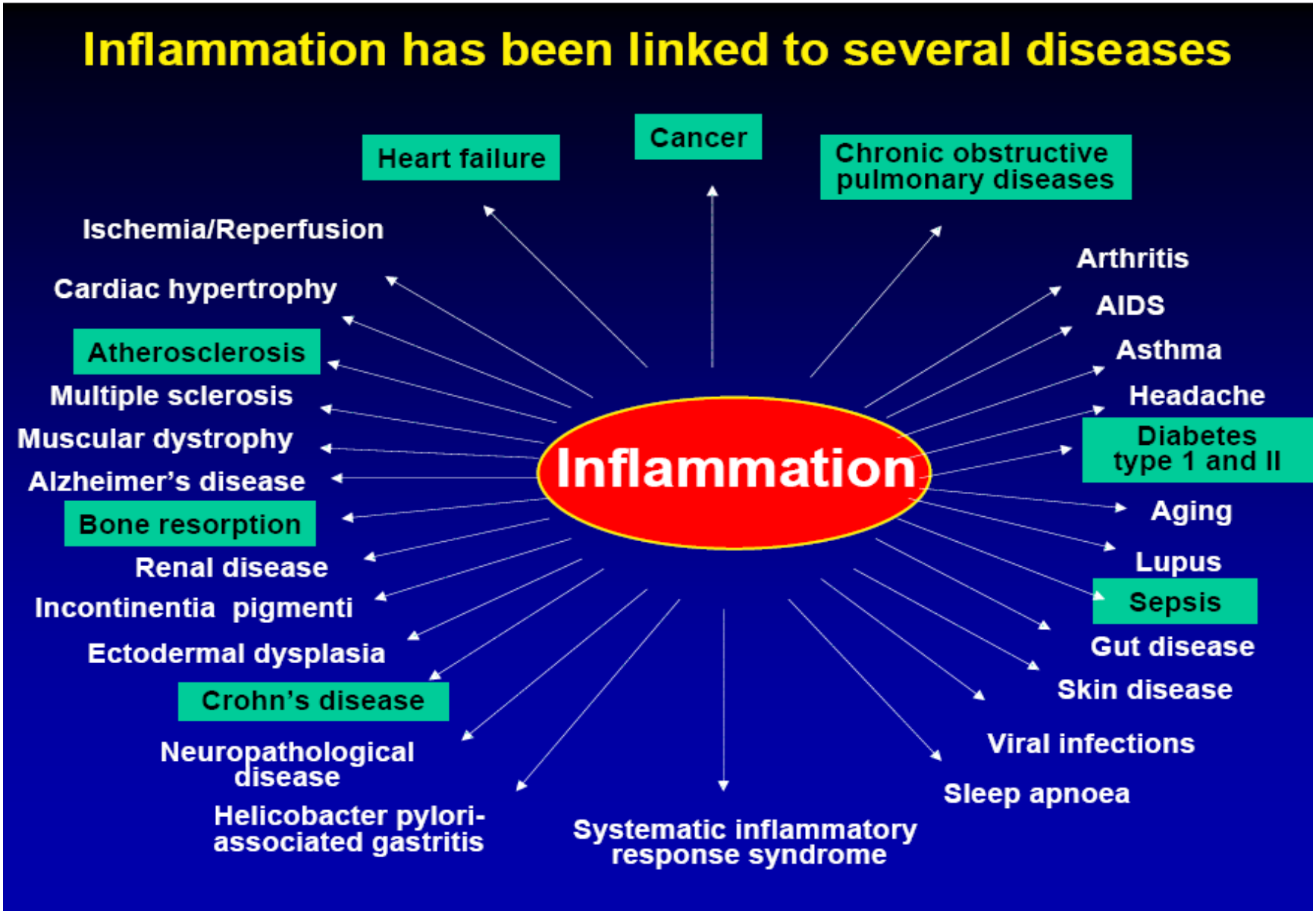
Protective ingredients in plants protect us and our Pets

- **Flavonoids** have profound effects on the function of immune and inflammatory cells, as determined by a large number and variety of in vitro and some in vivo observations.
- **Berry fruit extracts** and their bioactive compounds, when isolated, significantly inhibited activator protein-1 (AP-1), nuclear factor-KappaB (NFKB) and mitogen-activated protein kisases (MAPKs) signaling induced by UV or 12-tetradocanolyphorbol-13-acetate (TPA). Berry extracts specifically induced apoptosis and differentiation"
- **Antioxidants** "The chemopreventative effects of berry fruits might be through their antioxidant properties by blocking reactive oxygen species-mediated AP-l, NF-kappaB and MAPK activation.[22] "
- **Flavonoids: Anti-angiogenic effects:** modulation of cell signaling pathways by flavonoids could help prevent cancer.
- **Delphinidins inhibit EGFR kinase inhibitors downstream**. It's the delphinidin aglycone in the anthocyanidin group of compounds that recently has captured the attention of the French and produced a November 2005 NIH overview on delphinidins in brain cancer research (Quebec study).[23]

http://www.naturopathydigest.com/archives/2006/may/bishop.php

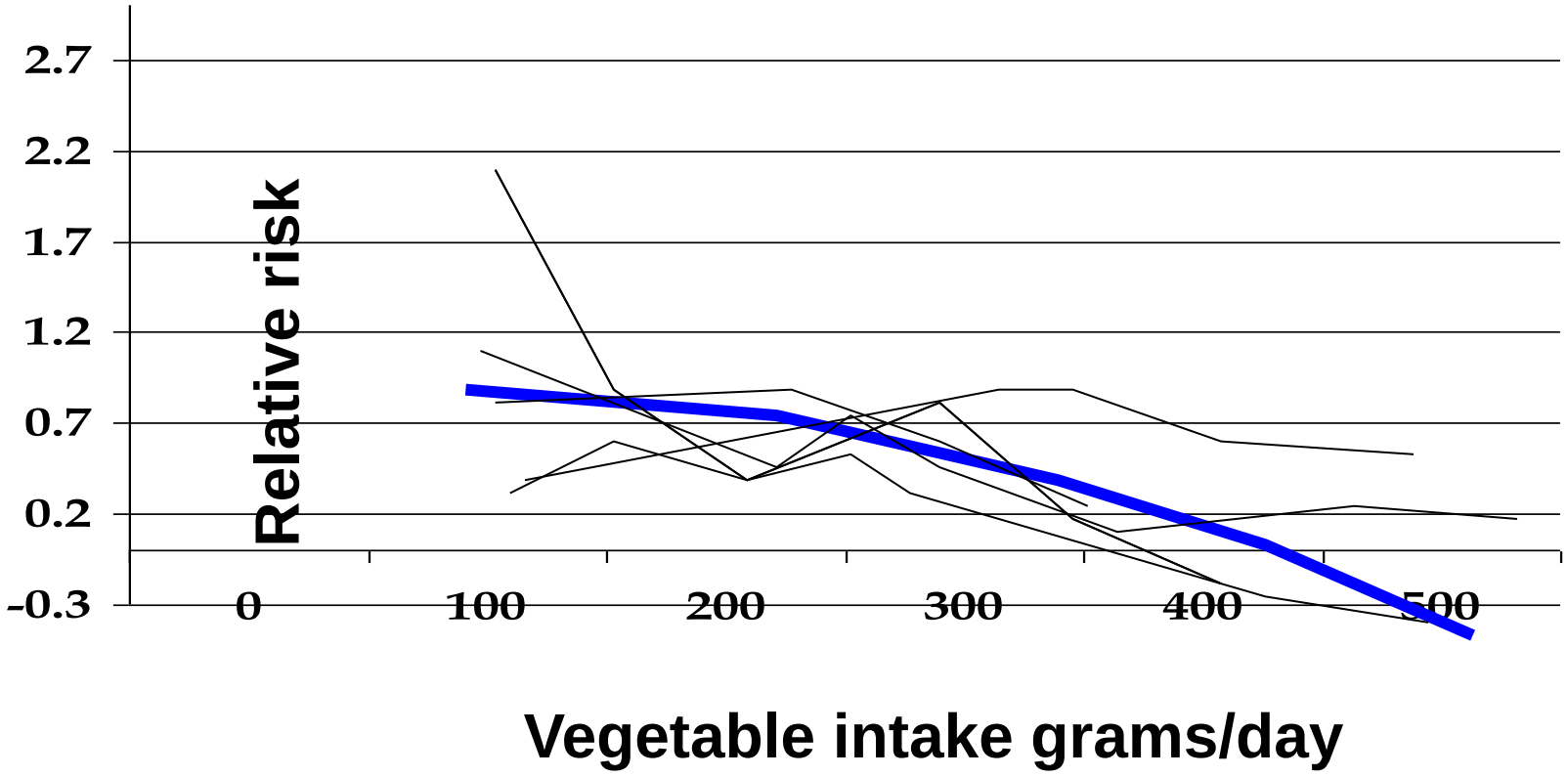
Inflammation plays a major in development of most diseases



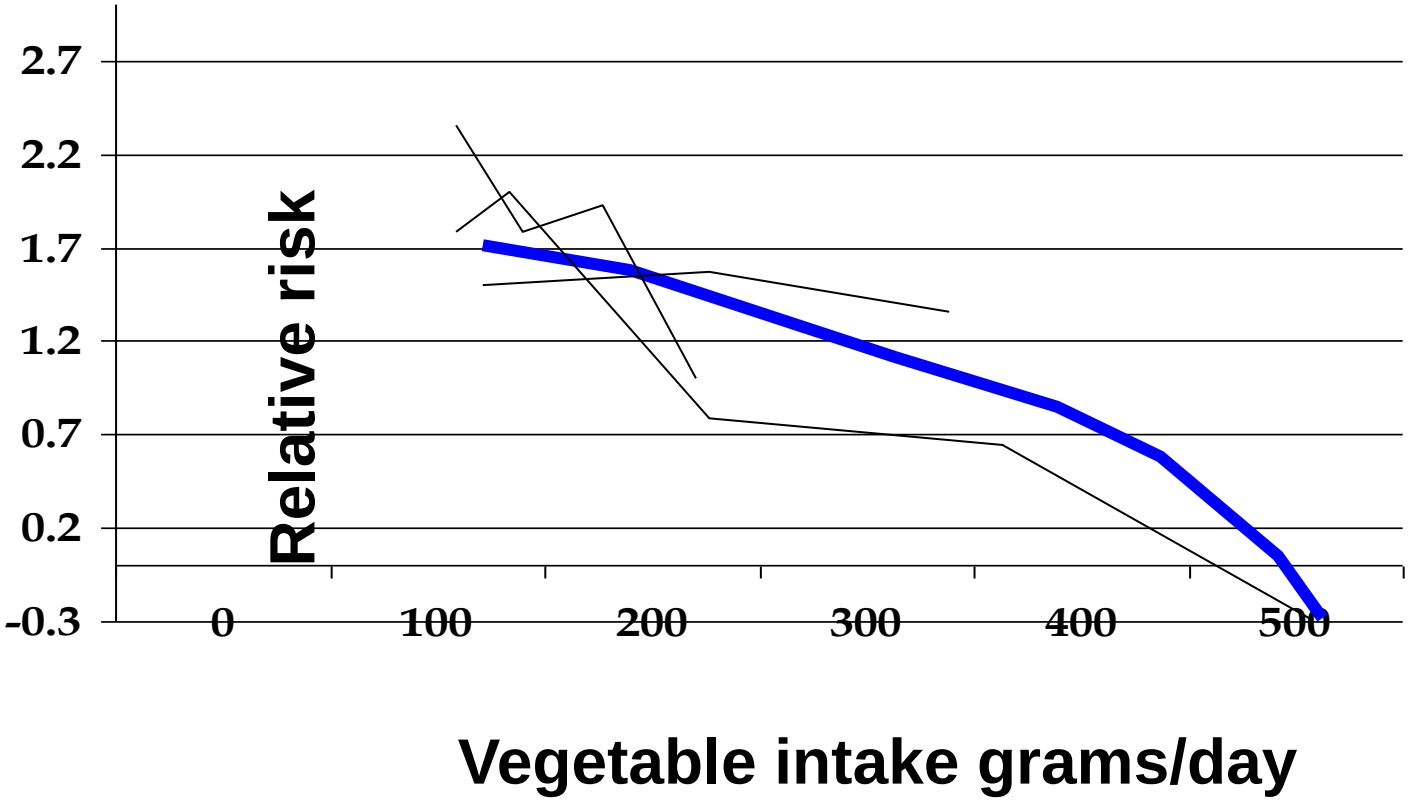

Inflammation has been linked to several diseases
Inflammation
Heart failure
Cancer
Chronic obstructive pulmonary diseases
Ischemia/Reperfusion
Cardiac hypertrophy
Atherosclerosis
Multiple sclerosis
Muscular dystrophy
Alzheimer's disease
Bone resorption
Renal disease
Incontinentia pigmenti
Ectodermal dysplasia
Crohn's disease
Neuropathological disease
Helicobacter pylori-associated gastritis
Systematic inflammatory response syndrome
Arthritis
AIDS
Asthma
Headache
Diabetes type 1 and II
Aging
Lupus
Sepsis
Gut disease
Skin disease
Viral infections
Sleep apnoea

Lung Cancer and Vegetable Intake

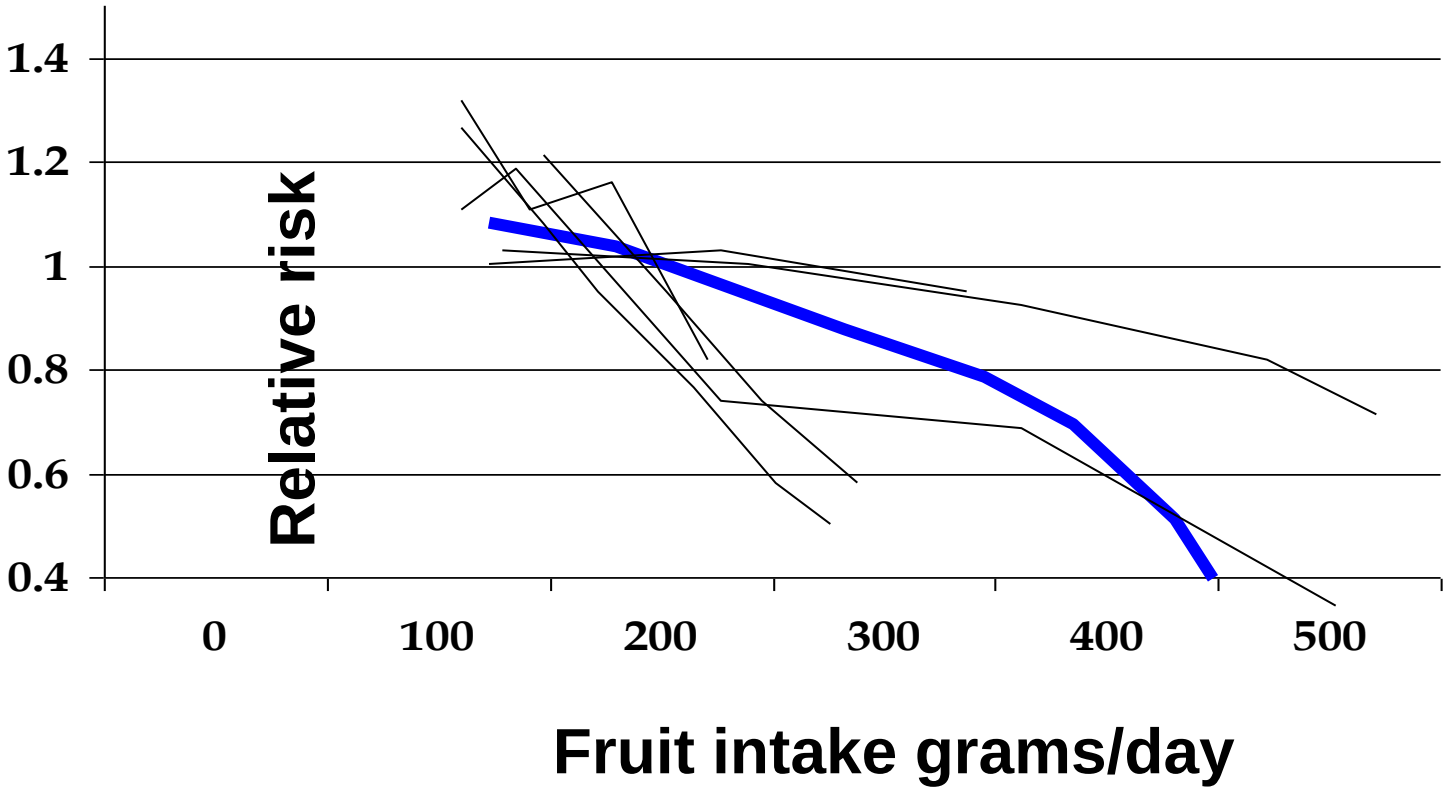
(each line is the results of a different study, the blue line is the average)



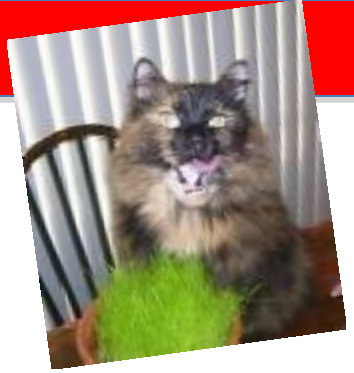
Stomach Cancer and Vegetable Intake



Stomach Cancer and Fruit Intake



The Powerful Protection of Greens



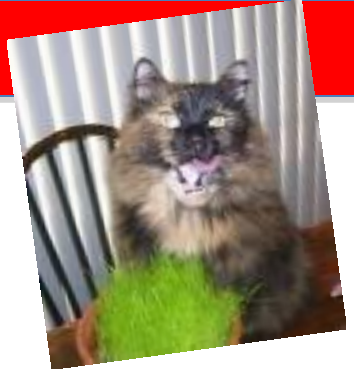
Daily dietary protection

I recommend concentrated greens from land and sea, are best 100% organic.
All the protection of greens without the gas causing fiber.

Greens provide the nourishment that most modern companion animals lack in their commercially-processed diets. Dogs eating grass or cats eating houseplants may well be desperate attempts to seek out green nutrition. Chlorophyll (the green in greens) is the molecule that absorbs sunlight and uses its energy to synthesize carbohydrates from CO2 and water (photosynthesis). Chlorophyll is an internal antiseptic, a cell stimulator, red blood builder, and rejuvenator. It relieves respiratory conditions; is nourishes the blood and is beneficial for heart conditions. Chlorophyll is a powerful detoxifier and tonic. It cleanses the blood and builds red blood cells while doing it.

Researchers in the early 1980's discovered that chlorophylls and related chemicals can inhibit the ability of certain DNA-damaging chemicals to cause mutations in bacteria. Another experiment by the U.S. Army showed that animals fed chlorophyll-rich greens survived twice as long other animals when all were exposed to fatal levels of radiation.

Combination: Greens are recommended for long-term nutrition.



The Powerful Protection of Daily Greens

20:1 concentration of Organic nutrients from Greens

Alfalfa Leaf
Wheat Grass
Oat Grass
Barley Grass
Spirulina
Chlorella
Dulse
Parsley
Spinach
Kale
Dandelion Leaf
Broccoli
Cilantro

Laboratory research on the health benefits of cereal grasses increased over the past two decades in the United States and Japan. At the same time, the use of wheat grass as an alternative therapy for chronic diseases became popular.

Medicinal Mushrooms

(Organically grown) *Nourishment for immune system support.*

“Mushroom-derived polysaccharides are now considered as compounds which are able to modulate animal and human immune responses.“

Reishi

Maitake

Shiitake

Medicinal mushrooms: their therapeutic properties and current medical usage with special emphasis on cancer treatments."
Download the extensive literature review monograph
http://www.icnet.uk/labs/med_mush/med_mush.html

Maqui Berry

(Aristotelia chilensis)

- **Maqui is a deeply purpled berry** from the Patagonia region, that stretches from Cemtral/Southern Chile to Antarctica, one of the cleanest place on this planet.
- **Extraordinary high concentration of anthocyanins,** contain high content of phenolic compounds and anthocyanins that exhibits high antioxidant activity.
- **Delphinidin**, a major anthocyanidin present in many pigmented fruits and vegetables, possesses antioxidant, anti-inflammatory, and antiangiogenic properties.

Research Confirms Benefits of Maqui Select

- boosts the immune system
- helps to maintain healthy inflammatory response
- helps control blood sugar and cholesterol levels
- helps prevent oxidation and related damage

Research Confirms Benefits of Maqui Select Extract

- **The inhibitory effect of delphinidin on angiogenesis** could not only involve its inhibitory effect on VEGF but also its inhibition of the PDGFR-β. The combined inhibition by delphinidin of these two important angiogenic receptors is likely to play a central role in the antiangiogenic and antitumor activity of this compound. These findings emphasize the chemopreventive possibilities of dietary-derived molecules and highlight the importance of nutrition in cancer prevention.
- Delphinidin, a dietary anthocyanidin, inhibits vascular endothelial growth factor receptor-2 phosphorylation
- Sylvie Lamy1, Mélanie Blanchette1, Jonathan Michaud-Levesque1, René Lafleur1, Yves Durocher3, Albert Moghrabi2, Stéphane Barrette2, Denis Gingras1 and Richard Béliveau1,2

Delphinidin

Maqui Select® extract has the highest delphinidin content among similar products on the market.

Delphinidin content in selected "superfruits" and extracts
Source: http://www.blueberry.org

Superberry	Content (%)
Maqui Select	28.6
Blackcurrant Frozen Fruit	2.9
Black chokeberry Frozen Fruit	3.0
Bilberry Frozen Fruit	1.7
Maqui Frozen Fruit	7.8

The research team in Chile made this important discovery on the ability of delphinidins present in Maqui Select® to stimulate the immune system.

Delphinidins are a type of anthocyanin, a vegetable pigment responsible for the blue and red colors of certain kinds of grapes, blueberries and pomegranates.

Research carried out by Maqui New Life has demonstrated that delphinidins elevate the liberation of intracellular calcium in Jurkat cells, which may activate the production of cytokines such as IL-2 and IFN-gamma in this cellular line and in human T lymphocytes.

Since cytokine production in T lymphocytes is activated through the NFAT transcription factor, and production of IL-2, induced by the delphinidins, is significantly reduced by the cyclosporin A (CsA) calcineurin inhibitor, it is evident that delphinidins have the ability to activate NFAT. All of these effects result in strengthening the cells of the immune system.

Maqui Select® has a potent antioxidant against the five most important radicals:

Anti-oxidant capacity of Maqui Select against 5 radicals
Source: Brunswick Laboratories, 2010

Radical	Valor (umole TE / 100 gram)
Peroxyl radicals	461,100
Hydroxyl radicals	1,437,200
Peroxynitrite	83,500
Super oxide anion	569,900
Singlet oxygen	124,500
TOTAL	**2,676,200**

Potent Antioxidant against the five most important radicals:
Peroxyls, hydroxyls, peroxynitrates, superoxide anions and other oxygen-based free radicals. Maqui Select® :

- boosts the immune system
- helps to healthy inflammatory response
- helps control blood sugar and cholesterol levels
- helps prevent oxidation and related damage

Maqui Select Extract Preliminary research results in the area cancer

- Chronic inflammatory processes are an important factor in the formation of intestinal tumors. It is known that the transcriptional factor NF-κB is a central factor in the development of inflammation and colon cancer.

- NF-κB-luc, Preliminary results suggest that *Maqui* has an inhibitory effect on the reporter gen NF-κB-luc in HL-60 cells indicating that the product might represent an alternative for the treatment for colon cancer via antinflammatory mechanism of action (patent pending).

Join Geoff on a trip to Southern Chile and an Exploration of Maqui

See the video of Geoff's journey as it winds through the South of Chile, exploring the highest anti-oxidant fruit in the world. It traces the discovery of the power of the Maqui fruit from the developing company, to the research at the University of Valdivia and onto the Mapuche Indian hospital where patients can choose treatment at their clinic, from either an MD or a Mapuche shaman. See dramatic shots of a Mapuche Shaman healing ceremony and psychic surgery.

Copy into you browser:

http://video.google.com/videoplay?docid=3744610803884045295#

Activation of Transcription Factor NF- B Is Suppressed by Curcumin

Activation of Transcription Factor NF- B Is Suppressed by Curcumin *(Diferuloylmethane)*

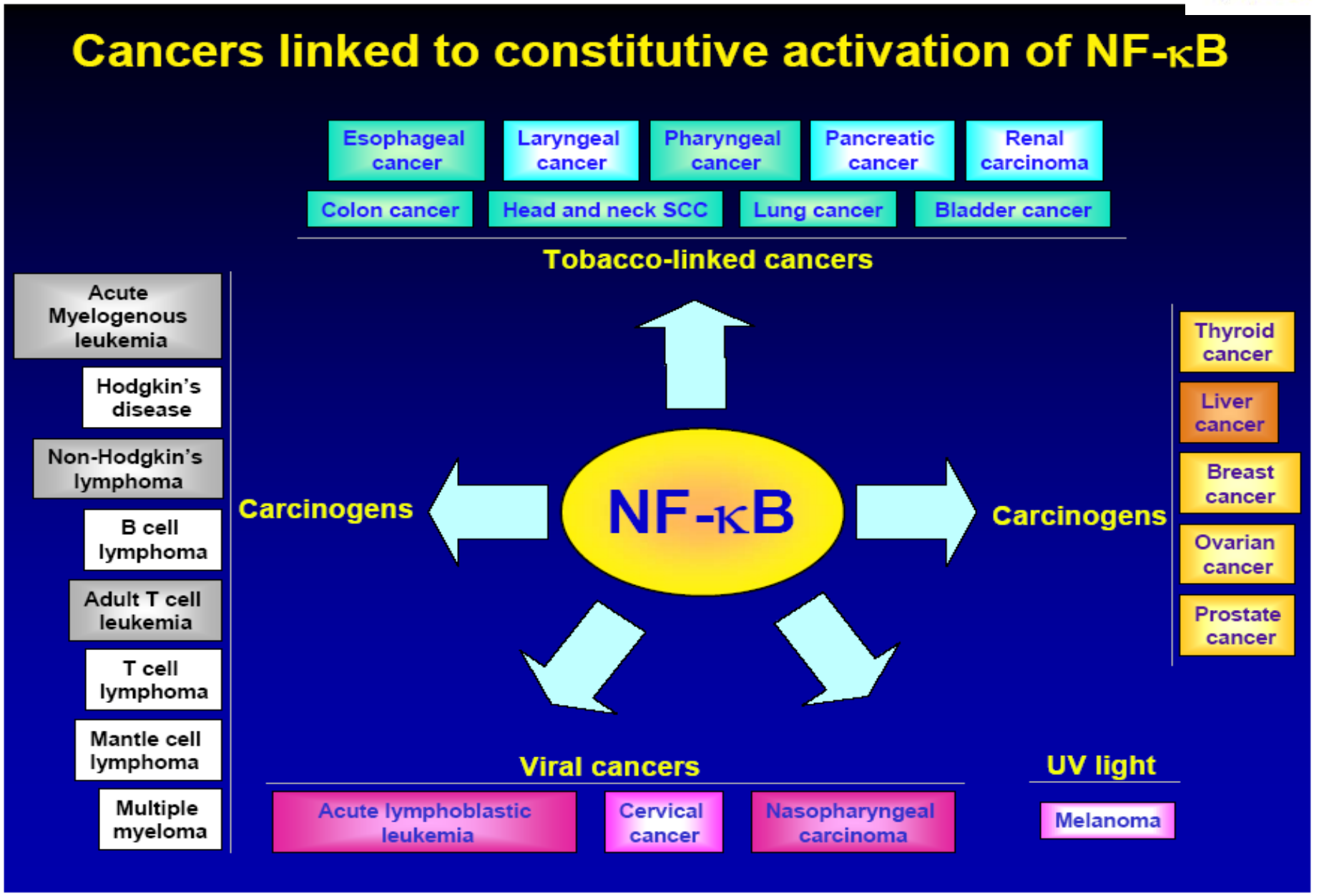
Sanjaya Singh, Bharat B. Aggarwal

This study demonstrated that curcumin a known anti-inflammatory and anticarcinogenic agent, is a potent inhibitor of NF- B activation.

Chemical Composition of Most Common Spices

Spice	Botanical name*	Part of Plant	Major Constituents
Tumeric	Curcuma longa	rhizome	Essentil oils 5%: tumerone (58%), borneol (6.5%), cineole (1%), a-phellandrene (1%), curcumin (0.6%), zingerone, zingiberene (25%)
Pepper (red)	Capsicum frutescens	fruit	Pigments: carotene, zeaxnthin, cryptoxanthin; oleoresin (1.5%); capsaicin
Cloves	Syzgium aromaticum (Caryophyllus aromaticus, Eugenia caryophyllata)	buds	Essential oils 17%: eugenol (93%), caryophyllin, vanillin, Eugenin, methylamylketone
Coriander	Coriandrum sativum	seeds	Essential oils 1%: (+)-linalool (60-70%), a-pinene, b-pinene, a-terpinene, b-terpinene, geraniol, borneol, decylaldehyde, dipentene, cymene
Cumin	Cuminum cyminum	seeds	Essential oil 4.5%: cuminaldehyde (40-65%),thymol, cymol, cymene

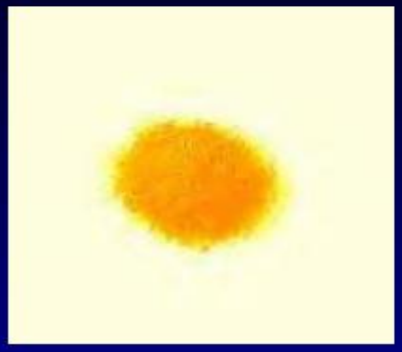
Cancers linked to constitutive activation of NF-κB



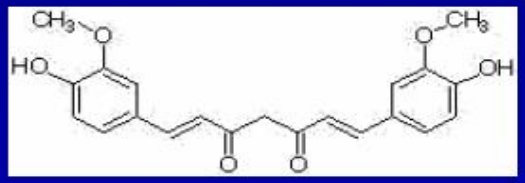
Curcumin in Turmeric

Curcumin

Curcuma longa root



Turmeric (spice)



Diferuloylmethane (dye)

Traditional medicines & herbal remedies

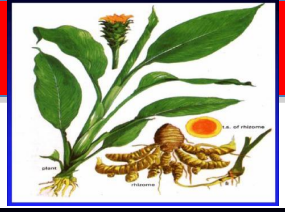
Cancer Prevention

- Curcumin's antioxidant actions enable it to **protect the colon cells from free radicals that can damage cellular DNA-**-a significant benefit particularly in the colon where cell turnover is quite rapid, occuring approximately every three days. Because of their frequent replication, mutations in the DNA of colon cells can result in the formation of cancerous cells much more quickly.
- Curcumin also helps the body to destroy mutated cancer cells, so they cannot spread through the body and cause more harm. A primary way in which curcumin does so is by enhancing liver function.
- Additionally, other suggested mechanisms by which it may protect against cancer development include inhibiting the synthesis of a protein thought to be instrumental in tumor formation and preventing the development of additional blood supply necessary for cancer cell growth.
- Epidemiological studies have linked the frequent use of **turmeric to lower rates of** breast, prostate, lung and colon cancer, and earlier laboratory experiments have shown **curcumin can prevent tumors from forming**

Comparison of Cancer Incidence

Cancer	USA		India		Japan	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Oral cavity	50	11	102	60	29	12
Nasopharynx	4	2	4	3	3	2
Other Pharynx	19	9	57	42	10	7
Oesophagus	31	31	63	59	58	43
Stomach	56	34	43	39	489	225
Colon/Rectum	356	139	40	26	342	143
Liver	30	31	17	16	186	146
Pancreas	72	68	11	11	76	71
Larynx	33	11	35	22	17	5
Lung	463	402	55	51	262	214
Melanoma of skin	113	21	3	1	3	2
Breast	914	212	191	99	314	77
Cervix uteri	78	33	307	174	111	30
Corpus uteri	155	20	17	5	45	13
Ovary etc.	106	62	49	29	66	37
Prostate	1043	179	46	28	111	55
Testis	40	2	6	3	13	2
Bladder	144	28	20	16	56	17
Kidney etc.	86	31	8	6	42	19
Brain, nervous system	54	37	21	16	24	9
Thyroid	46	3	14	4	31	5
Non-Hodgkin lymphoma	135	59	24	19	58	30
Hodgkin's disease	22	4	8	4	3	1
Multiple myeloma	35	26	8	6	16	12
Leukemia	80	54	26	20	48	34
All sites but skin	3223	1391	1017	688	2230	1213

Showing cases were after standardized with world standard population, called World Standardized incidence or mortality rate. It is also expressed per million. J. Ferlay, etal.GLOBOCAN 2000.URL: http://www-dep.iarc.fr/globocan/globocan.htm

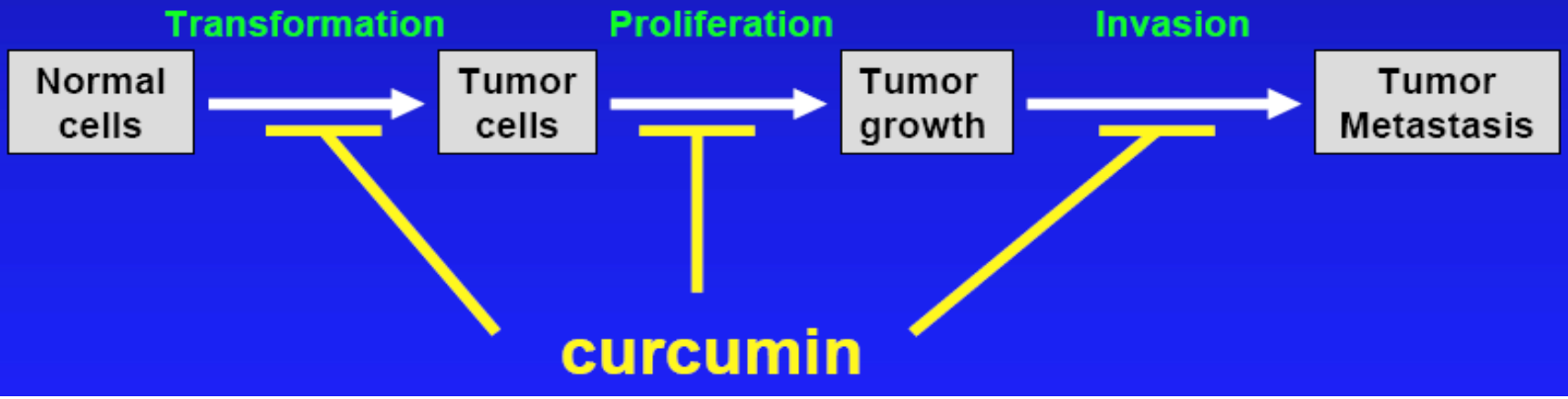


Different stages of cancer progression and its suppression by curcumin

Constitutive activation of transcription factors
- AP-1& NF-κB
- Tumor Suppressor genes

Overexpression of
- Oncogenes
- HER2
- Growth factors (e.g; EGF, PDGF, FGF)
- Growth factor receptors
- Survival factors (e.g; Survivin,Bcl-2 and Bcl-xl)
- Cyclin D1
- Decoy receptor

Overexpression of
- Matrix metalloproteases
- Cyclooxygenase-2
- Adhesion molecules
- Chemokine
- TNF



Suggested Herbal Therapy

- **Step 1. DEEP CLEANSING ANTI-TUMOR**
  - Hoxsey Formula, or….
  - Hoxsey Formula add Boneset to target Osteosarcoma

- **Step 2. IMMUNE BUILDING FORMULA**
  - Medicinal Mushrooms , reishi, maitake, shiitake

Long-Term Use: Alternate Every 2 Weeks

- **Step 1. DEEP CLEANSING ANTI-TUMOR**
  - Essiac with rieshi

- **Step 2. IMMUNE BUILDING FORMULA**
  - Immuno-Nourishing: Astragalus/Ligustrum TCM formula

Consider adding to food for Nutritional Support :

- Concentrated Greens
- Broccoli Sprouts (phase 2 liver enzymes/anti-tumor)

Hoxsey Formula

Harry Hoxsey's cancer formula, according to, James Duke, Ph.D., has some impressive chemical compounds of considerable interest to the National Cancer Institute.

"Eight of the herbs in the internal tonic showed anti-tumor activity in controlled laboratory tests. Five showed antioxidant properties as protectants against cancer. All showed antimicrobial properties with activity against viral or bacterial infections."

The Hoxsey formula is an ideal application to try to shift an animal's constitutional tendency away from supporting the growth of these wayward cancer cells, whilst increasing and building the immune response, and stimulating the release of accumulated toxins.

INGREDIENTS: Oregon grape root, burdock root, red clover flower, alfalfa leaf, prickly ash bark, stillingia root, cascara sagrada bark, poke root, licorice root.

Hoxsey with Boneset added

Harry Hoxsey's cancer formula, is gaining popularity among AHVMA Veterinarians, with boneset added for osteosarcoma, along with naturopathic, Chinese, and modern medicine.

Boneset was added for the deep-seated bone pain that so often accompanies osteosarcoma, and the analgesic action of this herb is particularly directed towards the bones. This "cooling" herb was also used historically to cool the heat of stagnant inflammation with deep aches and pains.

The primary role of the liver in reducing oxidative stress through the neutralization of free radicals suggest it plays a key role in the prevention of osteosarcoma. While this role has largely been overlooked, abnormal liver function tests were found to be strongly associated with poor prognosis in cases of Ewing's sarcoma.

The use of a regular liver cleansing herbal formula to clear any sluggishness of function would strongly be suggested as part of this protocol.

INGREDIENTS: Oregon Grape Root, Burdock Root, Red Clover Flowers, Alfalfa Leaf, Boneset Herb, Prickly Ash Bark, Stillingia Root, Cascara Sagrada Bark, Poke Root, Licorice Root

Medicinal Mushrooms

Prevention. Herbal nourishment for immune system support.

Conventional scientific databases contain hundreds of references to medicinal mushrooms. In China, cancer research and treatment are showing they can help counteract the toxic effects of chemotherapy and radiation while increasing outcomes against control groups not using herbs.

"Mushroom-derived polysaccharides are now considered as compounds which are able to modulate animal and human immune responses and to inhibit certain tumor growths."

Reishi nourishes the immune system, boosting the life span of white blood cells; its polysaccharides are anti-tumor, anti-viral and boost T-cell function.

Maitake targets breast and colorectal cancers. It is very effective for helping the immune system rebound from chemotherapy. Polysaccharide compounds from ***Shiitake*** that exhibited strong anti-tumor activities. maximize a host-mediated response to awaken the immune system, a panoply of mushroom polysaccharides is best.

Medicinal mushrooms: their therapeutic properties and current medical usage with special emphasis on cancer treatments."
Download the extensive literature review monograph
http://www.icnet.uk/labs/med_mush/med_mush.html

Essiac Formula with Reishi

Prevention & Herbal Nourishment for Immune System Support.

This formula was pioneered into existence, with a life time of commitment and work by Rene Caisse, R.N., a Canadian nurse. (Essiac is Caisse spelled backwards.) In over 50 years, she successfully treated thousands of patients. Reishi mushroom is used when there is a weakened toxic state to enhance the immune system, increase white cell counts, platelets, hemoglobin and various tumor fighting cells.

The deep cleansing effects of essiac combined with reishi help to cleanse and boost the immune system.

Ingredients:

Burdock root, sheep sorrel herb, red clover aerial parts, reishi mushroom, slippery elm bark, turkey rhubarb root, stevia leaf.

Sulforaphane in Broccoli

- Sulforaphane induces Phase 2 (detoxification) enzymes, which are the enzymes that help to deactivate carcinogens and free radicals, thereby enhancing the body's own defense system.
- Some of the best growing techniques now guarantee large quantities, up to 5,500 parts per million, of sulforaphane within organically grown broccoli sprout
- In animal studies, sulforaphane blocked tumor development, reducing incidence, multiplicity, and size of carcinogen-induced mammary tumors

Sulforaphane in 7-10 day-old Broccoli Sprouts, 5,500 ppm

Protection and detoxification support.

In animal studies, **sulforaphane blocked tumor development**, reducing incidence, multiplicity, and size of carcinogen-induced mammary tumors. Small quantities of broccoli sprout extracts have reduced the incidence and size of mammary tumors in animals.

Talalay's research team fed extracts of the sprouts to groups of 20 female rats for five days, and exposed them and a control group that had not received the extracts to a carcinogen, dimethylbenzanthracene. The rats that received the extracts developed fewer tumors, and those that did get tumors had smaller growths that took longer to develop. The number of rats that developed tumors was reduced by as much as 60%, the number of tumors in each animal was reduced by 80%, and the size of the tumors that did develop was reduced by 75%. Furthermore, the tumors' appearance was delayed and they grew more slowly. Clinical studies are underway to further explore the effects of broccoli sprouts on protective biomarkers against human cancer.

Scientists at the American Health Foundation discovered that sulforaphane inhibited the formation of pre-malignant lesions in the colons of rats, and researchers in France found that sulforaphane induced cell death in human colon carcinoma cells. This study suggests that "in addition to the activation of detoxifying enzymes, induction of apoptosis [cell death] is also involved in the sulforaphane-associated chemo-prevention of cancer." These results have not yet been validated in humans, but are making a lot of scientists sit up and take note.

Read a review of studies on SGS:
http://www.darcynat.com/Article.asp?strsessionguid=F0E7294D759469E&fArticleID=47

INGREDIENTS:
Organic Broccoli Sprouts. 5,500 ppm of sulforaphane. 2.75 mgs. of sulforaphane per 1/2 scoop.

Immuno-Nourishing
TCM formula *Astragalus-Ligustrum*

This formula evolved from **Fu Zheng Therapy** research done in modern China. Using tonic herbs to protect the immune systems of Cancer patients from the toxic effects of radiation or chemotherapy. Fu Zheng is a traditional Chinese herbal therapy now being used by modern Chinese physicians in combination with radiation and chemotherapy for treatment of cancer. Major studies in China have found that this combination can work better than the Western methods alone. Fu Zheng therapy helps to overcome the immune deficiencies caused by the chemotherapy or radiation.

Studies in cell cultures and laboratory animals have demonstrated these herbs combined synergistically to increase immunity. Astragalus' polysaccharides, Eleuthero's eleuthero-sides, and Schisandra's ligans have demonstrated their immune and energy building qualities.

INGREDIENTS: Astragalus root, ligustrum root, schisandra berry, eleuthero root (Siberian ginseng), codonopsis root, white atractylodes root, poria sclerotium, tangerine peel, licorice root, stevia leaf.

Bibliography

* Cao, G. & Prior, L. "**Plant pigments paint a rainbow of antioxidants",** Agricultural Research, Nov. 1996, p. 4-8.

Citarella, L. (2000). **Medicine and Culture in Araucania.** Chapter IX. Editorial Sudamericana, 2nd edition, Santiago de Chile. 617 pp.

* Césped, C., Jakupovic, J., Silva, M., & Tsichritzis, F. (1993). **Quinoline Alkaloid from A. chilensis, Phytochemistry**. 34 (3), 881-882 p.

Césped, C., Jakupovic, J., & Watson, W. (1990). **Indole-alkaloids from A. chilensis, Phytochemistry.** 29 (4), 1354-1356 p.

* Feldman, E. B. **Fruits and Vegetables and the Risk of Stroke.** Nutr. Rev. 2001, 59, 24-27.

* Gaziano, J.M.; Manson, J.E.; Buring, J.E.; Hennekens, C.H. **Dietary antioxidants and cardiovascular disease.** Ann. N. Y. Acad. Sci. 1992, 669, 249-258.

* Joseph, J. And Nadeau, & Underwood, Anne. (2002). **The Color Code: A Revolutionary Eating Plan for Optimum Health.** Hyperion. 308 pp. .

* Montecino, S. & Conejeros, **A.Mapuche women: Traditional Wisdom in Curing Common Illnesses**. Serie Mujer y Salud, Centro de Estudios de la Mujer (1985).

* Muñoz, O., Montes, M, & Wilkomirsky, T. (2001). **Medicinal Plants in Chile: Chemistry and Pharmacognosis.** Editorial Universitaria. University of Chile. 330 pp.

* Miranda-Rottmann, S., et al. (2002). **Polyphenol Rich Fractions of the Berry Aristotelia chilensis inhibit LDL Oxidation In-Vitro and Protect Human Endotelial Cells Against Oxidative Stress**. Free Radical Biology & Medicine (Oxygen Society), XI th Meeting of the Society for Free Radical Research International, July 16-20, René Descartes University, Paris, France.

* Miranda-Rottmann, S., et al. (2002). **Juice and Phenolic Fractions of the Berry Aristotelia chilensis Inhibit LDL oxidation in vitro and Protect Human Endotelial Cells against Oxidative Stress**. Journal of Agricultural and Food Chemistry. 50, 7542-7547.

* Parthasarathy, S.; Santanam, N.; Ramachandran, S.; Meilhac, O. **Oxidants and antioxidants in atherogenesis.** An appraisal. J. Lipid Res. 1999. 40, 2143-2157.

* Prior, R. et al. **Assays for Hydrophilic and Lipophylic Antioxidant Capacity (oxygen radical absorbance capacity (ORAC FL) of plasma and other biological and food samples**. Journal of Agricultural and Food Chemistry, 2003, 51, 3273-3279.

* Visioli, F.; Borsani, L.; Galli, C.; **Diet and prevention of coronary heart disease: the potential role of phytochemicals**. Cardiovasc. Res. 2000, 47, 419-425.

Bibliography

* Cao, G. & Prior, L. "**Plant pigments paint a rainbow of antioxidants",** Agricultural Research, Nov. 1996, p. 4-8.

Citarella, L. (2000). **Medicine and Culture in Araucania.** Chapter IX. Editorial Sudamericana, 2nd edition, Santiago de Chile. 617 pp.

* Césped, C., Jakupovic, J., Silva, M., & Tsichritzis, F. (1993). **Quinoline Alkaloid from A. chilensis, Phytochemistry**. 34 (3), 881-882 p.

Césped, C., Jakupovic, J., & Watson, W. (1990). **Indole-alkaloids from A. chilensis, Phytochemistry.** 29 (4), 1354-1356 p.

* Feldman, E. B. **Fruits and Vegetables and the Risk of Stroke.** Nutr. Rev. 2001, 59, 24-27.

* Gaziano, J.M.; Manson, J.E.; Buring, J.E.; Hennekens, C.H. **Dietary antioxidants and cardiovascular disease.** Ann. N. Y. Acad. Sci. 1992, 669, 249-258.

* Joseph, J. And Nadeau, & Underwood, Anne. (2002). **The Color Code: A Revolutionary Eating Plan for Optimum Health.** Hyperion. 308 pp. .

* Montecino, S. & Conejeros, **A.Mapuche women: Traditional Wisdom in Curing Common Illnesses**. Serie Mujer y Salud, Centro de Estudios de la Mujer (1985).

* Muñoz, O., Montes, M, & Wilkomirsky, T. (2001). **Medicinal Plants in Chile: Chemistry and Pharmacognosis.** Editorial Universitaria. University of Chile. 330 pp.

* Miranda-Rottmann, S., et al. (2002). **Polyphenol Rich Fractions of the Berry Aristotelia chilensis inhibit LDL Oxidation In-Vitro and Protect Human Endotelial Cells Against Oxidative Stress**. Free Radical Biology & Medicine (Oxygen Society), XI th Meeting of the Society for Free Radical Research International, July 16-20, René Descartes University, Paris, France.

* Miranda-Rottmann, S., et al. (2002). **Juice and Phenolic Fractions of the Berry Aristotelia chilensis Inhibit LDL oxidation in vitro and Protect Human Endotelial Cells against Oxidative Stress**. Journal of Agricultural and Food Chemistry. 50, 7542-7547.

* Parthasarathy, S.; Santanam, N.; Ramachandran, S.; Meilhac, O. **Oxidants and antioxidants in atherogenesis.** An appraisal. J. Lipid Res. 1999. 40, 2143-2157.

* Prior, R. et al. **Assays for Hydrophilic and Lipophylic Antioxidant Capacity (oxygen radical absorbance capacity (ORAC FL) of plasma and other biological and food samples**. Journal of Agricultural and Food Chemistry, 2003, 51, 3273-3279.

* Visioli, F.; Borsani, L.; Galli, C.; **Diet and prevention of coronary heart disease: the potential role of phytochemicals**. Cardiovasc. Res. 2000, 47, 419-425.

Hoxsey References

References:

Kenny Ausubel's new book, *When Healing Becomes a Crime*—the study of this Dallas-based promoter of natural cancer cures.
Hoxsey Therapy by Richard Walters.
Resources:

1. Ken Ausubel, "The Troubling Case of Harry Hoxsey," New Age Journal, July-August 1988, p. 79.
2. Surgery, Gynecology and Obstetrics, vol. 114, 1962, pp. 25-30; and see Walter H. Lewis and Memory P.F. Elvin-Lewis, Medical Botany: Plants Affecting Man's Health (New York: John Wiley and Sons, 1977).
3. F.E. Mohs, "Chemosurgery: A Microscopically Controlled Method of Cancer Excision," Archives of Surgery, vol. 42, 1941, pp. 279295, cited in Patricia Spain Ward, "History of Hoxsey Treatment," contract report submitted to U.S. Congress, Office of Technology Assessment, May 1988, pp. 2-3.
4. Ward, op. cit., p. 8.
5. Kazuyoshi Morita, Tsuneo Kada, and Mitsuo Namiki, "A Desmutagenic Factor Isolated From Burdock (Arctium Lappa Linne)," Mutation Research, vol. 129, 1984, pp. 25-31, cited in Ward, op. cit., p. 7.
6. Harry Hoxsey, You Don't Have to Die (New York: Milestone Books, 1956), pp. 44-48.
7. Ibid., p. 59.
8. Francis Brinker, "The Role of Botanical Medicine in 100 Years of Naturopathy," *HerbalGram*, No. 42, spring, 1998, pp. 49-59; "Where Does Eclectic Come From?" Eclectic Institute, Inc. promotional literature, Sandy Oregon, 1998.
9. Bio-Medical Center P.O. Box 727 615 General Ferreira Colonia Juarez Tijuana, Mexico 22000 Phone: 011 52 66-84-9011 01152 66-84-9081 01152 66-849082 01152 66-849376
10. You Don't Have to Die, by Harry Hoxsey, Milestone Books (New York), 1956. Out of print; check your local library.
11. *The Cancer Survivors and How They Did It*, by Judith Glassman (see Appendix A for description).
12. "Does Mildred Nelson Have an Herbal Cure for Cancer? by Peter Barry Chowka, Whole Life Times, January-February 1984.
13. "The Troubling Case of Harry Hoxsey," by Ken Ausubel, New Age Journal, July-August 1988.

Hoxsey References, cont'd.

Other Material:
Video: Hoxsey: When Healing Becomes a Crime (originally entitled Hoxsey: Quacks Who Cure Cancer?), 1987. Ninety-six minutes. An excellent, very moving documentary on the Hoxsey therapy, covering its history, the Bio-Medical Center, and the politics and economics of cancer. Produced and directed by Ken Ausubel and coproduced by Catherine Salveson, R.N., it premiered at the Margaret Mead Film Festival in New York and was shown on cable television. Available from Realidad Productions (P.O. Box 1644, Santa Fe, NM 87504; 505-989-8575).

References from Ken Ausubel HerbalGram Article

1. *Fraud Fighters.*" This is America" series, RKO Pathé, (1949) MCMXLIX.
2. Morris Fishbein, *The New Medical Follies*, (New York: Boni and Liveright, 1927), p. 148.
3. "Cough Medicine for Cancer," *JAMA*, Vol. 155, No. 7, 6.12.54, pp. 667-68.
4. Anne Raver, "A Man with a Garden That's a Medicine Cabinet," *New York Times*, 10.15.98.
5. NAPRALERT; Father Nature's Farmacy database (USDA) founded by James Duke, Ph.D. (http://www.ars-grin.gov/~ngrlsb); Dr. Duke's private database; research conducted by Francis Brinker and published as "The Hoxsey Treatment: Cancer quackery or effective physiological adjuvant?" *Journal of Naturopathic Medicine*, Vol. 6, No. 1, 8.15.96, pp. 9-23;
6. Patricia Spain Ward, "History of the Hoxsey Treatment," contract report to the Office of Technology Assessment," 1987, republished in *Townsend Letter for Doctors & Patients*, 5.97, pp. 68-72; Unconventional Cancer Treatments, OTA report to Congress, 1990, (GPO #052-003-01203-3), pp. 75-80;
7. Ralph W. Moss, *Herbs Against Cancer* (Brooklyn: Equinox Press, 1998), p. 277.
8. Jonathan L. Hartwell, *Plants Used Against Cancer* (Lawrence, MA: Quartermain Publications, 1982); originally published in eleven installments in *Lloydia*, 1970-1971.
9. James Duke, "The Herbal Shotgun Shell," *HerbalGram*, No. 18/19, Fall 1988/Winter 1989, pp. 12-13.
10. Francis Brinker, N.D., "The Hoxsey Treatment: Cancer quackery or effective physiological adjuvant?" *Journal of Naturopathic Medicine*, Vol. 6, No. 1, 8.15.96, pp. 9-23.
11. Harry Hoxsey, *You Don't Have to Die* (New York: Milestone Books, 1956).
12. That formula listed alfalfa, buckthorn bark, cascara sagrada, prickly ash, red clover, potassium iodide, and honey drip cane syrup.
13. Here *Cascara sagrada* was replaced by *Cascara amarga*, a very different plant.
14. Francis Brinker, "The Role of Botanical Medicine in 100 Years of Naturopathy," *HerbalGram*, No. 42, spring, 1998, pp. 49-59; "Where Does Eclectic Come From?" Eclectic Institute, Inc. promotional literature, Sandy Oregon, 1998.
15. Public advertisements, Parke, Davis and Co.; Organic Materia Medica, Parke, Davis and Co., Second Edition (Detroit, MI: 1890), 1904; National Formulary, Fifth Edition, American Pharmaceutical Association, 1926; National Formulary, Sixth Edition, 1935.
16. *King's American Dispensatory,* Felter and Lloyd, 1898-1900, p. 1996.
17. *Father Nature's Farmac*y, http://www.ars-grin.gov/~ngrlsb/; also, http://www.inform.umd.edu/PBIO/MEDICAL_BOTANY/index.html

Hoxsey References, cont'd.

36. Dombradi C.A., and Földeák S., "Screening report on the antitumor activity of purified *Arctium lappa* extracts," *Tumor*, Vol. 52, 1966, p. 173.
37. Kupchan M.S., "Recent Advances in the Chemistry of Tumor Inhibitors of Plant Origin," Swain, Tony (ed.), *Plants in the Development of Modern Medicine* (Cambridge, MA, and London: Harvard University Press, 1972), pp. 261-78.
38. Morita K., Kada T., and Namiki M., "A desmutagenic factor isolated from burdock (*Arctium lappa* Linne), *Mutation Research*, Vol. 129, 1984, pp. 25-31.
39. There are several books on Essiac, but the most objective critical analysis is contained in *Herbs Against Cancer* by Ralph Moss, pp. 108-35.
41. Uckun *et al*., "Pokeweed antiviral protein as a potent inhibitor of human immunodeficiency virus," *Antimicrobial Agents and Chemotherapy*, Vol. 42, No. 2, 1998, pp. 383-88; also see "Editorial: Phytolacca in Carcinoma," *Eclectic Medical Journal*, Vol. LVI, No. 1, 1896.
42. It is important to note that this modified antiviral poke protein is derived mainly from the plant's leaves, though similar or equivalent factors have been isolated from the root as well.
44. Brinker, "Periscope: Phytolacca," *The Eclectic Medical Journals*, Vol. II, no. 5, Oct/Nov., 1996, p. 2-4; W.H. Davis, M.D., "Art. XLVIII. - On the effects of Phytolacca Decandra on the glands," *Eclectic Medical Journal*, Vol. 36, 1876, pp. 259-60; "Phytolacca in Carcinoma," *Eclectic Medical Journal*, editorial, 1896, pp. 335-36; F.R. Millard M.D., "Some of the Uses of Phytolacca Decandra," *Medical Surgical Reporte*r, Vol. LXXV, 10.3.1896, pp. 420-22.
45. Poke is conventionally used as a screening procedure for immune competence.
46. Hoshi A., Ikekawa T., Ikeda Y., *et al*., "Antitumor activity of Berberrubine derivatives," *Gann*, Vol. 67, 1976, pp. 321-25;Owen, Tsung-Yao, Show-yin, Su-Yin, Wang, *et al*., "A new antitumor substance-Lycobetaine," *K'o Hsueh Tung Pao*, Vol. 21, No. 6, 1976, pp. 285-87; Wolf S., Mack M., "Experimental study of the action of bitters on the stomach of a fistulous human subject," *Drug Standards*, Vol.24, No.3, 1956, pp. 98-101; Ikram M., "A review on the chemical and pharmacological aspects of genus Berberis," *Planta Medica*, Vol. 28, 1975, pp. 353-58; Suess T.R., Stermitz F.R., "Alkaloids of Mahonia repens with a brief review of previous work in the genus Mahonia," *Journal of Natural Products*, Vol. 44, 1981, pp. 680-87; Velluda C.C., Goina T., Ticsa I., Petcu P., Pop S., Csutak W., "Effect of Berberis vulgaris extract and of the berberine, berbamine, and oxyacanthine alkaloids on liver and bile function," *Lucr. Prez. Conf. Natl. Farm*., Bucharest, 1958, pp. 351-54, (contained in *Chemical Abstracts* [*C.A. henceforth*] Vol. 53, p. 15345a); Turova A.D., Konovalov M.N., Leskov A.L., "Berberine, an effective cholagogue," *Med. Prom. SS*SR Vol. 18, No. 6, 1964, pp. 59-60 (*C.A.* Vol. 61, p. 15242f); Amin A.H., Subbaiah T.V., Abrasi K.M., "Berberine sulfate: antimicrobial activity, bioassay, and mode of action," *Cancer Journal of Microbiology*, Vol. 15, 1969, pp. 1067-76; Kumazawa Y., ltagaki A., Fukumoto M., Fujisawa H., Nishimura C., "Activation of peritoneal macrophages by berberine-type alkaloids in terms of induction of cytostatic activity," *International Journal of Immunopharmacology*, Vol. 6, No. 6, 1984, pp. 587-92; Schmitz H., "The influence of berberine on cellular metabolism," *Z. Krebsforsch*. Vol. 57, 1950, pp. 137-41, (*C.A.*, Vol. 46, p. 4680i); Shvarev I.F., Tsetlin A.L., "Antiblastic properties of berberine and its derivatives," *Mater. Vses. Konf. Issled. Lek. Rast. Perspekt. Ikh Ispol'z. Proizvod. Lek. Prep*., 1972, p. 245, (*C.A.*, Vol. 83, p. 674m); Taylor A., McKenna G.F., Burlage H.M., "Anticancer activity of plant extracts," *Texas Reports in Biological Medicine*, Vol. 14, 1956, pp. 538-56; Unconventional Cancer Treatments, op. cit.

Barberry has traditionally been used for cancers or tumors of the liver, neck and stomach. The bark of the stem is considered cleansing and toning to organs of digestion and elimination. It contains numerous protoberberine alkaloids, such as berberine sulfate, which has shown activity in a number of tumor systems. It also contains the alkaloid oxyacanthine, which is active against at least one tumor system. Brinker, op. cit.

The species of barberry which Hoxsey cited is Berberis vulgaris, which grows in the Midwest. According to Ward: respective 1976 Japanese and Chinese studies established the presence of antitumor substances in this variety of barberry. Testing tumor size in mice, Hoshi and his co-workers found "strong antitumor activity" in berberrubine, an alkaloid isolated from Berberis vulgaris. (op. cit.) Also in 1976, Owen et al.. derived from berberine a new antitumor substance which they have named Lycobetaine (op. cit.).

Hoxsey References, cont'd.

47. Berberine is also present in another popular herb, goldenseal, which has strong antibacterial and antifungal properties. Bark of the two species of northern prickly ash *Z. americanum* and *Z. clava-herculis* contains the alkaloids chelerythrine and nitidine. Nitidine exhibits cytotoxicity and has shown high activity in leukemia test systems. Chelerythrine was cytotoxic to tumor cells in test tubes. Studies include: Rao K.V., Davies R., "The ichthyotoxic principles of *Zanthoxylum clava-herculis*," *Journal of Natural Products*, Vol. 49, No. 2, 1986, pp. 340-42; Jacobson M., "The structure of echinacein, the insecticidal component of American coneflower roots," *Journal of Organic Chemistry*, Vol. 32, 1967, pp. 1646-47; Fish F., Waterman P.G., "Alkaloids in the bark of *Zanthoxylum clava-herculis*," *Journal of Pharmacy and Pharmacology*, Vol. 25 (Supplement), 1973, pp. 115P-16P; Fish F., Gray A.L., Waterman P.G., Donachie F., "Alkaloids and coumarins from North American Zanthoxylum species," *Lloydia*, Vol. 38, 1975, pp. 268-70.
Cordell G.A., Farnsworth N.R., "Experimental antitumor agents from plants, 1974-76," *Lloydia*, Vol. 40, No. 1, 1977, p. 1-44; Stermitz F.R., Larson K.A., Kim D.K., "Some structural relationships among cytotoxic and antitumor benzophenanthridine alkaloid derivatives," *Journal of Medical Chemistry*, Vol. 40, No. 8, 1973, pp. 939-40.
48. Buckthorn was also traditionally used for hard spots on the liver and spleen.
49. Kupchan S.M., Karim A., "Tumor inhibitors. 114. Aloe emodin: antileukemic principle isolated from *Rhamnus frangulus* L.," *Lloydia*, Vol. 39, No. 4, 1976, pp. 223-24.
50. Ibid. For other studies, see the appendix [of Ausubel's book].
51. Kupchan M.S., and Karim A., op. cit., 1976, pp. 223-24.
52. Taylor A., McKenna G.F., Burlage H.M., "Anticancer activity of plant extracts," *Texas Reports in Biological Medicine*, Vol. 14, 1956, pp. 538-56. Other studies include: Fairbairn J.W., "The active constituents of the vegetable purgatives containing anthracene derivatives," *Journal of Pharmacy and Pharmacology*, Vol. 1, 1949, pp. 683-92; Hoerhammer L., Wagner H., Hoerhammer H.P., "New methods in pharmacognostical education. XIII. Thin-layer chromatography of components of *Rhamnus* cortical drugs and their preparation," *Deut. Apoth.-Ztg*., Vol. 107, No. 17, 1967, pp. 563-66, (C.A., Vol. 67, p. 84920u); Mary N.Y., Christensen B.V., Beal J.L., "A paper chromatographic study of aloe, aloin and of cascara sagrada," *Journal of the American Pharmaceutical Association*, Vol. 45, 1956, pp. 229-32; Lish P.M., Dungan K.W., "Peristaltic-stimulating and fecal-hydrating properties of dioctyl sodium sulfosuccinate, danthron, and cascara extracts in the mouse and rat," *Journal of the American Pharmaceutical Associatio*n, Vol. 47, 1958, pp. 371-75; Tyson R.M., Shrader E.A., Perlman H.H., "Drugs transmitted through breast milk," *Journal of Pediatrics*, Vol. 11, 1937, pp. 824-32; Dwivedi S.P.D., Pandey V.B., Shah A.H., Rao Y.B., "Chemical constituents of *Rhamnus* procumbens and pharmacological actions of emodin," *Phytotherapy Research*, Vol. 2, No. 1, 1988, pp. 51-53; Kupchan M.S., Karim A., op. cit., 1976.
53. Eli Jones, *Cancer: Its Causes, Symptoms and Treatmen*t (Boston: Therapeutic Publishing Co., Inc., 1911).
54. McKenna G.F., Taylor A., "Screening plant extracts for anticancer activity," *Texas Reports in Biological Medicine*, Vol. 20, 1962, pp. 214-20.
55. Adolf W., and Hecker E., "New irritant diterpene-esters from roots of *Stillingia sylvatic*a L. (Euphorbiaceae)," *Tetrahedron Letter*s, Vol. 21, 1980, p. 2887. Stillingia has long been used for respiratory infections and syphilitic symptoms.

Hoxsey References, cont'd.

56. Brinker, op. cit.; Gibson M.R., "Glycyrrhiza in old and new perspectives." *Lloydia*, Vol. 41, No. 4, 1978), pp. 349-54.
Doll R., Hill I.D., Hutton C., Underwood K.J. II, "Clinical trial of a triterpenoid liquorice compound in gastric and duodenal ulcer," *Lancet*, 10.20.62, pp. 793-96; Tangri K.K., Seth P.K., Parmar S.S., Bhargava K.P., "Biochemical study of anti-inflammatory and anti-arthritic properties of glycyrrhetic acid," *Biochemical Pharmacology*, Vol. 14, 1965, pp. 1277-81; Tamura Y., Nishikawa T., Yamada K., Yamamoto M., Kumagai A., "Effects of glycyrrhetinic acid and its derivatives on D4-5a- and 5b-reductase in rat liver," *Arzneimittel Forschung*, Vol. 29, 1979, pp. 647-49; Bannister B., Ginsburg R., Shneerson J., "Cardiac arrest due to liquorice-induced hypokalaemia," *British Medical Journal*, 9.17.77; Wash L.K., Bernard J.D., "Licorice-induced pseudoaldosteronism," *American Journal of Hospital Pharmacy*, Vol. 32, No.1, 1975, pp. 73-74; Abe N., Ebina T., Ishida N., "lnterferon induction by glycyrrhizin and glycyrrhetinic acid in mice," *Microbiology and Immunology*, Vol. 26, No. 6, 1982, pp. 535-39.
57. Licorice's pharmacological activity is ascribed to the saponin constituent glycyrrizin and its derivative, glycerrhetic acid. Glycyrrizin has been shown to induce interferon production in living mice, which can lead to enhanced immune response. (Abe *et al.*, op. cit.)
58. Nishino H., Kitagawa K., Iwashima A., "Antitumor-promoting activity of glycyrrhetic acid in mouse skin tumor formatian induced by 7,12-dimethylbenz[a]anthracene," *Carcinogenesis*, Vol. 5, No. 11, 1984, pp. 1529-30; Kitagawa K., Nishino H., Iwashima A., "lnhibition of the specific binding of 12-O-tetradeconoylphorbol-13-acetate to mouse epidermal membrane fractions by glycyrrhetic acid," *Oncology*, Vol. 43, 1986, pp. 127-30; Kumagai A., Nishino K., Shimomura A., Kin T., Yamamura Y., "Effect of glycyrrhizin on estrogen action," *Endocrinologica Japonica*, Vol. 14, No. 1, 1967, pp. 344-48; Reiners W., "7-Hydroxy-4'-methoxy-isoflavon (formononetin) aus sussholzwurzel. Uber inhaltsstoffe der sussholzwurzel," II. *Experientia*, Vol. 22, 1966, p. 359; Taylor A., McKenna G.F., Burlage H.M., "Anticancer activity of plant extracts," *Texas Reports in Biological Medicine*, Vol. 14, 1956, pp. 538-56.

These studies carefully documented potassium iodide as "one of the few specific cures" for actinomycosis [lumpy jaw], inflammatory fungal swellings in horses, cows, and other animals. It was used both orally and by injections. Its practical results were unmistakable. The administration of potassium iodide caused the resolution and repair of these large lumps and inflammations. It was able to dispel pumpkin-sized, hard swellings "resembling a bloody sponge bleeding copiously," within two weeks, in one case. In another instance, it eliminated a cauliflower-size growth on an animal's hoof. In the 1926 study, the author concluded, "I unhesitatingly recommend potassium iodide injection for all growths chronic in character," as well as cysts, warts, collar tumors, and other similar maladies.
Bryan's follow-up 1930 publication documented an even broader range of astonishing cures including cancer. One case was "an ugly, inoperable neoplasm, diffuse hemorrhagic and with an offensive odor located around the vulva of a Holstein cow. I used a saturated solution of potassium iodide and it resulted in extensive necrosis [tumor death] all around the original tumified area. Due to the laboratory diagnosis of malignant carcinomatosis [cancer], the owner refused to keep the cow, and she was slaughtered two weeks later. A microscopic examination of sections taken at this time revealed almost no cancer cells. The potassium iodide evidently destroyed and disintegrated the tissues which it penetrated to, bringing about cell shrinkage or necrosis with resorption of the detritus and broken down tissue structures." (Bryan concluded that he believed it to be only a temporary treatment, however, since the spread of the cancer might theoretically continue afterward.)

Hoxsey References, cont'd.

64. Letter from Arthur Bryan to AMA Bureau of Investigation, 3.11.51.
65. Letter from Edmund M. Burke to Oliver Field, AMA Bureau of Investigation, 6.11.51.
66. Letter from Dr. Gordon A. Granger, FDA, to R.M. Davenport, with list of medical citations, including testimony of Dr. Maxamillian A Goldzieher from Hoxsey trials; "Four Doctors Blast Claims of Hoxsey," *Johnstown Tribune-Democrat*, 10.17.56.
Bryan also wrote Hoxsey in 1951, eager to draw attention to his exciting findings. Dr. Durkee replied, noting "We have felt that the iodides, especially potassium iodide, reacted as a catalyst at the time the medications were prepared, and that the end result of this was what gave us the reaction." Letters from Arthur Bryan to Hoxsey Cancer Clinic, 2.19.51 and from J.B. Durkee, D.O., Medical Director, to Bryan, 3.28.51. During Dr. Ivy's visit to the clinic, Dr. Durkee reported to him that he thought that "the mixing of the ingredients in the internal solution produced a new anti-cancer substance. This they said was indicated because the solution got cold and this occurred when the KI was added." "Abstracts of 'Tests' and 'Cures'," Committee on Cancer Diagnosis and Therapy, National Research Council, 2.1.51, containing Dr. Ivy's "Notes: On a Visit to the Hoxsey 'Cancer Clinic'," 2.10.49.
67. Robert G. Houston, *Repression and Reform in the Evaluation of Alternative Cancer Therapies* (Washington DC: Project Cure, Inc. 1987), p. 7 (quoting Schweitzer, 1962).
68. Dr. Max Gerson, *A Cancer Therapy: Results of 50 Cases and the Cure of Advanced Cancer by Diet Therapy* (Bonita, CA: The Gerson Institute in association with Station Hill Press, fifth edition, 1990; first edition copyright 1958); "Cancer Research: Hearings before a Subcommittee of the Committee on Foreign Relations," *US Senate, 79th Congress, Second Session on S. 1875*, US Government Printing Office, 7.1-3.46, pp. 98-123. According to Gar Hildenbrand, former director of the Gerson Institute, Dr. Gerson said he found a severe imbalance in cancer patients of the ratio of sodium and potassium, with a deficiency of the latter. He was convinced by laboratory findings of the time that potassium iodide would better supply iodine to replenish deficiencies and enhance metabolism quickly. Dr. Gerson believed, as subsequent research has shown, that iodine helps increase cell metabolism by stimulating the thyroid gland's production of hormones, in turn retarding and inhibiting tumor growth. \
69. David West, M.D., who headed the Hoxsey Research Foundation, contended that potassium iodide "inhibits glycolosis" (the anaerobic metabolism of sugars), which he characterized as causing the specific biochemical lesion of the malignant cell. He agreed with Dr. Max Gerson that malignant tissues are impoverished of potassium and iodine, and corrected it with potassium iodide. Dr. West and many naturopathic physcians explicitly considered it an alterative. Dr. David West, "Answering Commissioner Larrick," *Defender*, c. 1953, pp. 7-8; also, E. Edgar Bond, B.L.M.D., "What's in the Hoxsey Treatment?" *National Health Federation Reprint 4H*, c. 1953; "2 Hoxsey Witnesses, Both Doctors, Bared as Crime Violators," *Pittsburgh Post-Gazett*e, 10.30.56; "Potassium Iodide Claimed Beneficial," *Johnstown Tribune-Democra*t, 10.30.56; Dr. David West, "Answering Commissioner Larrick," *Defende*r, 6.56; West, "Hoxsey Chemotherapy," *Defende*r, no date; Physicians of the period commonly employed potassium iodide for a wide range of diseases including pneumonia, bronchitis, pleurisy, and syphilis. It was believed to promote the absorption of deposits of broken-down tissues, while stimulating the thyroid and other glands which enable blood cells to combat infectious processes.

Hoxsey References, cont'd.

70. Letter to the editor from Alan Morris, "For a Clear KI Policy," *New York Times*, 11.21.88; "Report on the Accident at Chernobyl Nuclear Power Station," *US Nuclear Regulatory Commission, NUREG-1250*; "States Will Now Receive Drug for Public Use in Nuclear Mishaps," *New York Times*, 8.22.98; "Atom Agency Tries to Avoid Financing Fallout Drug," *New York Times*, 4.24.99.
Potassium iodide is also used by conventional medicine to protect against radiation. It is administered in tandem with the diagnostic usage of radioactive iodide. Studies further show that it is an effective antioxidant for its free-radical scavenging properties. It is used to treat a disease called Sweet's syndrome which is associated with cancer but is not cancer. Mouse tests have shown both pro- and anticancer effects. Medline on the world wide web at a public site has numerous references on potassium iodide from which this is drawn: http://www.ncbi.nlm.nih.gov/PubMed.
71. Cited in *Unconventional Cancer Treatments* (OTA).
72. Letter from Dr. Richard Early to Martin Murphy, President and CEO, Hipple Cancer Institute, Dayton, Ohio, personally provided to author.
73. Steve Austin, Ellen Baumgartner Dale and Sharon DeKadt, "Long term follow-up of cancer patients using Contreras, Hoxsey and Gerson therapies," *Journal of Naturopathic Medicine,* Vol. 5, No. 1, 1994, pp. 74-76.
74. Ward, "History of the Hoxsey Treatment," op. cit., p. 70.

Broccoli References

- Powerful and prolonged protection of human retinal pigment epithelial cells, keratinocytes, and mouse leukemia cells against oxidative damage: the indirect antioxidant effects of sulforaphane. http://www.pnas.org/cgi/doi/10.1073/pnas.261572998 Proc. Natl. Acad. Sci. USA, Vol. 98, Issue 26, pp. 15221-15226, December 18, 2001 Xiangqun Gao, Albena T. Dinkova-Kostova, and Paul Talalay
- The impaired glutathione system and its up-regulation by sulforaphane in vascular smooth muscle cells from spontaneously hypertensive rats. http://www.jhypertension.com/article.asp?ISSN=0263-6352&VOL=19&ISS=10&PAGE=1819 Hypertension, Vol. 19, pp. 1819-1825, 2001. Lingyun Wu; Bernhard H. J. Juurlink
- Potent induction of Phase 2 enzymes in human prostate cells by sulforaphane. http://cebp.aacrjournals.org/cgi/content/abstract/10/9/949 Cancer Epidemiology, Biomarkers & Prevention, Vol. 10, pp. 949-954. Sept. 2001. James D. Brooks, Vincent G. Paton and Genevieve Vidanes
- Sensitivity to carcinogenesis is increased and chemoprotective efficacy of enzyme inducers is lost in nrf2 transcription factor-deficient mice http://www.pnas.org/cgi/content/short/98/6/3410 Proc. Natl. Acad. Sci. USA, Vol. 98, Issue 6, 3410-3415, March 13, 2001 Minerva Ramos-Gomez, Mi-Kyoung Kwak, Patrick M. Dolan, Ken Itoh, Masayuki Yamamoto, Paul Talalay, and Thomas W. Kensler JHMI Press release: Studies Show Powerful Natural Anti-Cancer System Exists: Goal Now: Fine Tune It
- Potency of Michael reaction acceptors as inducers of enzymes that protect against carcinogenesis depends on their reactivity with sulfhydryl groups http://www.pnas.org/cgi/content/short/98/6/3404 Proc. Natl. Acad. Sci. USA, Vol. 98, Issue 6, 3404-3409, March 13, 2001 Albena T. Dinkova-Kostova, Michael A. Massiah, Richard E. Bozak, Ronald J. Hicks, and Paul Talalay. The chemical diversity and distribution of glucosinolates and isothiocyanates among plants Phytochemistry 2001, 56:5-51. Fahey, Jed W., Zalcmann, Amy T, Talalay, Paul.
- Inhibition of benzo[a]pyrene- and 1,6-dinitropyrene-DNA adduct formation in human mammary epithelial cells by dibenzoylmethane and sulforaphane. http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10814878&dopt=Abstract Cancer Letters 2000 July 3; 155(1):47-54. Singletary K, MacDonald C.
- Sulforaphane, A Naturally Occurring Isothiocyanate, Induces Cell Cycle Arrest and Apoptosis in HT29 Human Colon Cancer Cells http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10728709&dopt=Abstract Cancer Research 2000 March 1; 60(5):1426-1433. Gamet-Payrastre L, Li P, Lumeau S, Cassar G, Dupont MA, Chevolleau S, Gase N, Tulliez J, TerÃ§Ã© F.
- Chemoprevention of colonic aberrant crypt foci in Fischer rats by major isothiocyanates in watercress and broccoli. Proceedings of the American Association for Cancer Research, March 2000; 41:660. Chung F-L, Conaway CC, Rao CV, Reddy BS.
- Antioxidant functions of sulforaphane: a potent inducer of Phase II detoxication enzymes. http://www.ncbi.nlm.nih.gov/htbin-post/Entrez/query?uid=10541453&form=6&db=m&Dopt=b Food Chem Toxicol 1999 Sep-Oct;37(9-10):973-9 Jed W. Fahey, Paul Talalay
- The War Against Cancer: New Hope, Proceedings of the American Philosophical Society, March 1999, Vol. 143(1), pp. 52-72., Talalay, Paul.
- Broccoli sprouts: An exceptionally rich source of inducers of enzymes that protect against chemical carcinogens http://www.pnas.org/cgi/content/abstract/94/19/10367 Proc. Natl. Acad. Sci. USA, Vol. 94, pp. 10367-10372, September 16, 1997. Jed W. Fahey, Yuesheng Zhang, and Paul Talalay
- Electrophile and Antioxidant Regulation of Enzymes that Detoxify Carcinogens http://www.pnas.org/cgi/content/abstract/92/19/8965 Proc Natl Acad Sci U S A 1995 Sep 12;92(19):8965-9 T Prestera and Paul Talalay
- Anticarcinogenic Activities of Sulforaphane and Structurally Related Synthetic Norbornyl Isothiocyanates http://www.pnas.org/cgi/content/abstract/91/8/3147 Proc Natl Acad Sci USA 1994 Apr 12;91(8):3147-50 Y Zhang, TW Kensler, C Cho, GH Posner and P Talalay
- Chemical and Molecular Regulation of Enzymes that Detoxify Carcinogens http://www.pnas.org/cgi/content/abstract/90/7/2965 Proc Natl Acad Sci USA 1993 Apr 1;90(7):2965-9 T Prestera, WD Holtzclaw, Y Zhang and P Talalay
- A Major Inducer of Anticarcinogenic Protective Enzymes from Broccoli: Isolation and Elucidation of Structure http://www.pnas.org/cgi/content/abstract/89/6/2399 Proc Natl Acad Sci USA 1992 Mar 15;89(6):2399-403 Y Zhang, P Talalay, C Cho and GH Posner
- Rapid Detection of Inducers of Enzymes that Protect Against Carcinogens http://www.pnas.org/cgi/content/abstract/89/6/2394 Proc Natl Acad Sci USA 1992 Mar 15;89(6):2394-8 HJ Prochaska, AB Santamaria and P Talalay
- Chemoprotection against cancer by phase 2 enzyme induction. http://www.ncbi.nlm.nih.gov/htbin-post/Entrez/query?uid=8597048&form=6&db=m&Dopt=b Toxicol Lett 1995 Dec;82-83:173-9 Talalay P, Fahey JW, Holtzclaw WD, Prestera T, Zhang Y

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