

Re-evaluating Approaches of Integrative Oncology

Michael B Schachter MD, CNS

Schachter Center for Complementary Medicine

2 Executive Boulevard; Suite 202

Suffern, New York 10901

845-368-4700; www.schachtercenter.com

CARE Conference-Ridgewood NJ

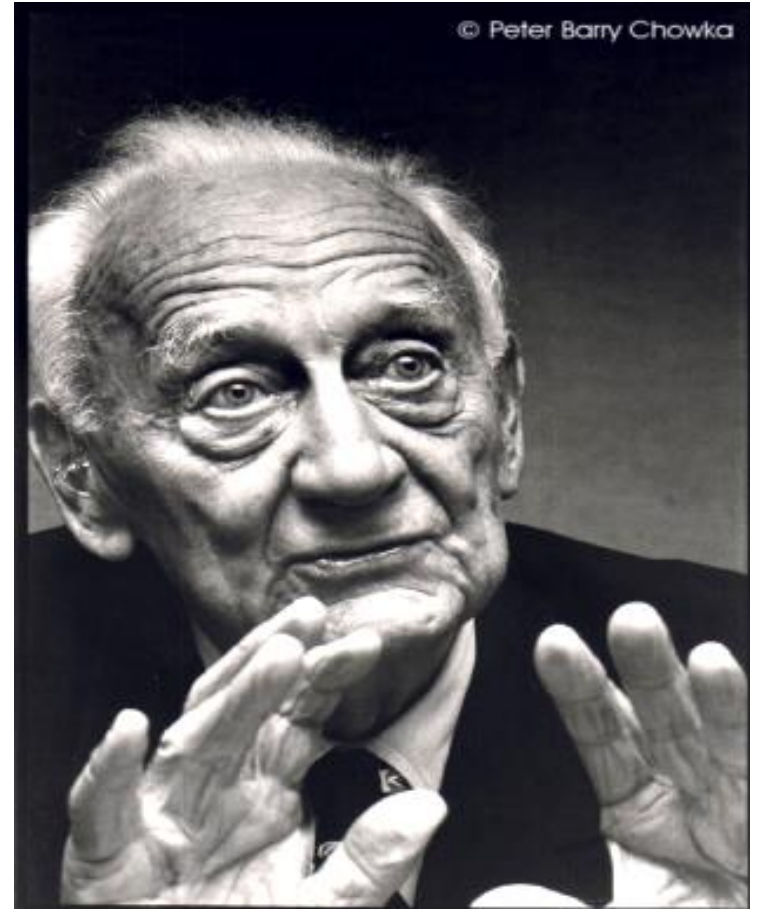
Oct 13, 2016

Outline

- Resources, references, websites, further information in **WORD document: handout of 2 pages; rest will be available for downloading from our website by Monday 10-17-16. Slides will also be available for download**
- Contains links to websites if used in the electronic form; otherwise copy and paste to browser
- **New theoretical approach to cancer; rebirth of old approach (Warburg Theory); practical use**
- Critique of conventional treatments and clinical trials
- Combining many relatively non-toxic approaches with or without conventional Tx

Nobel Prize Winner Albert Szent-Gyorgyi

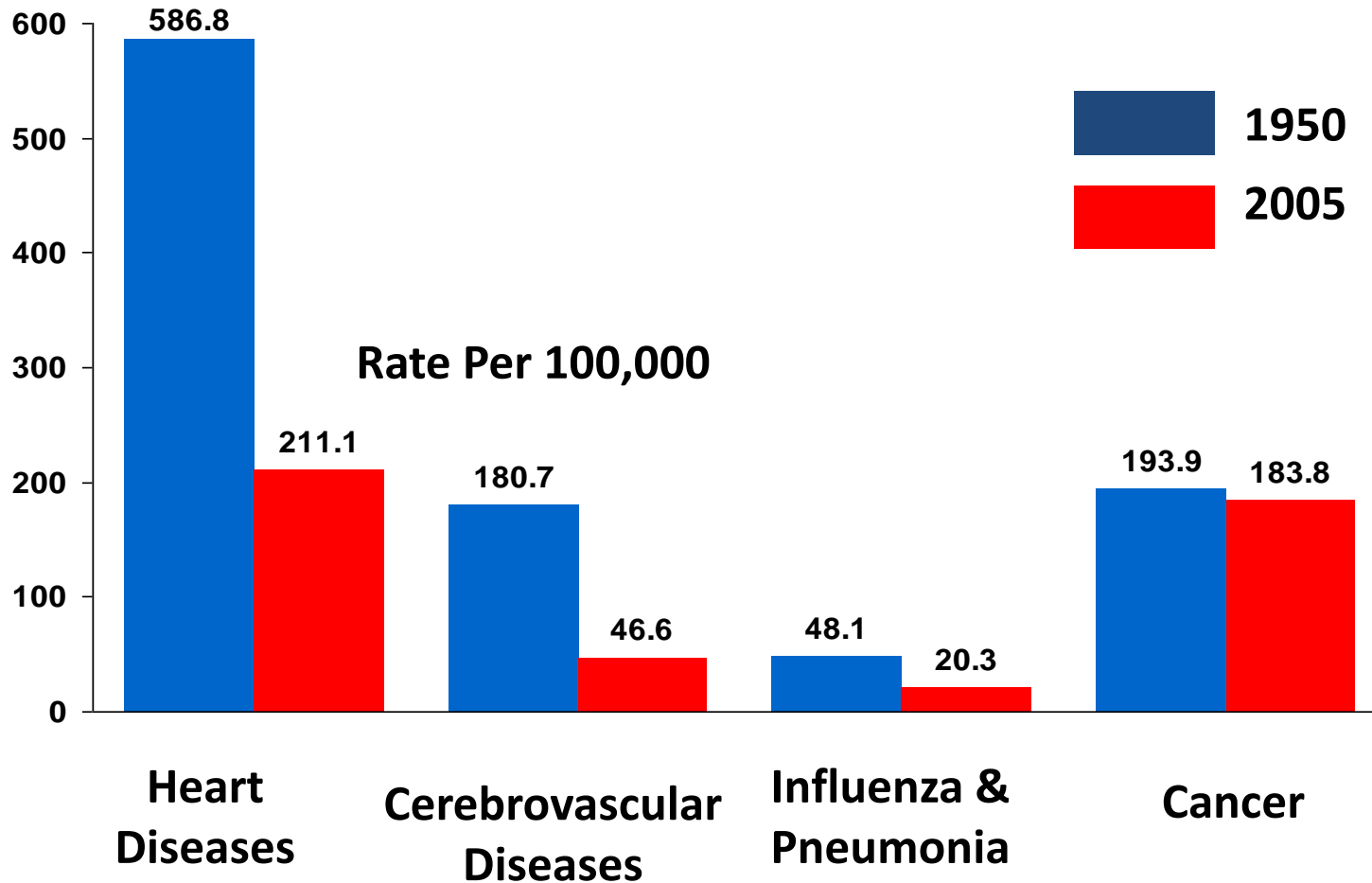
“Discovery consists of seeing what everybody has seen, and thinking what nobody has thought”



Thesis

Alternative treatment protocols have the potential to be **competitive if not superior** to conventional treatments. They should be considered as a **primary, not merely supplementary option** for treatment. Also, helpful to **prevent cancer**

Change in the **U.S. Death Rates*** by Cause: 1950 & 2005



* Age-adjusted to 2000 US standard population.

Sources: 1950 Mortality Data - CDC/NCHS, NVSS, Mortality Revised.

2005 Mortality Data: US Mortality Data 2005, NCHS, Centers for Disease Control and Prevention, 2008.

Understanding of Cancer and Cancer Treatments are **Changing**

- **Cancer Treatments-Generally not very effective, except in rare cases**
- Predominant conventional understanding of cancer needs to be questioned
- There is **massive resistance** to change from the conventional medical establishment, pharmaceutical companies, insurance companies, institutes of medical education and the media



What is Cancer According to the National Cancer Institute (NCI)?

- <http://www.cancer.gov/about-cancer/understanding/what-is-cancer#differences-cancer-cells-normal-cells>
- Collection of related diseases
- Cells grow uncontrollably, invade tissues and resist dying, even when old
- **Genetic disease** characterized by **mutations** in
 - Oncogenes-Genes that accelerate growth
 - Suppressor Genes-Genes that suppress growth
 - DNA repair genes

Bert Vogelstein MD: Johns Hopkins

- Worked on **defining the genetic changes that define cancer**
- Develops **therapies that target the unique vulnerabilities in cancer cells** that result from their mutations
- <https://www.hhmi.org/scientists/bert-vogelstein>
- However, **this approach largely unsuccessful in finding useful treatments**



Bert Vogelstein MD
Johns Hopkins Medical Center

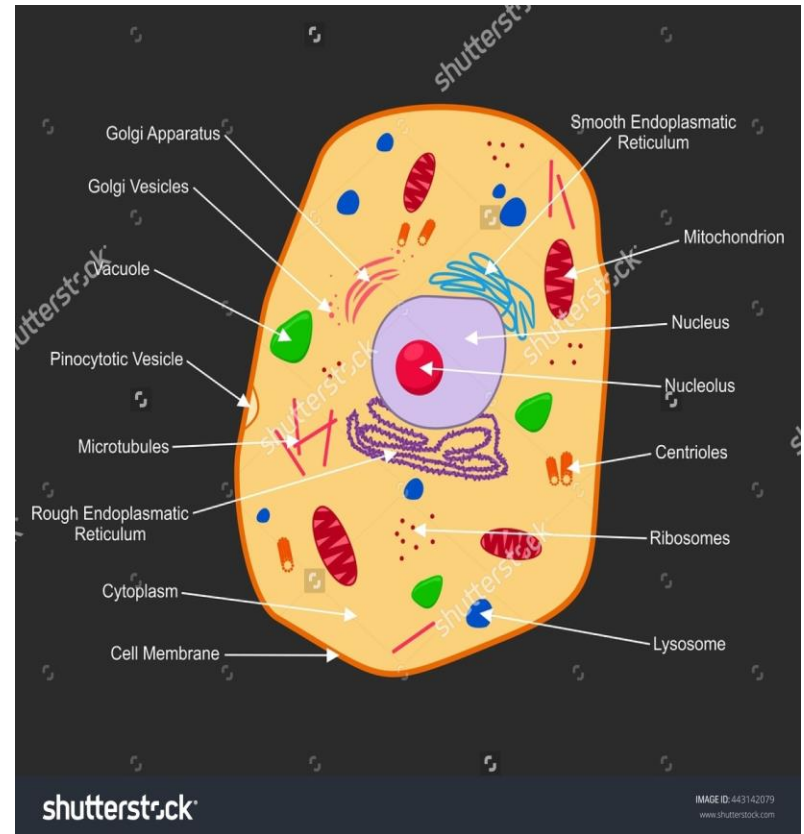
John C Bailar MD, PhD; **NEJM**

May 1997: Chemotherapy has Failed

- Born in 1932-Died Sept 2016
- Was Professor Emeritus at U of Chicago
- **MD Yale 1955 ; PhD statistics** 1973 (American University)
- **Editor-in-Chief of the Journal of the NCI**
- Age adjusted mortality higher in 1990 than 1970
- **“The effect of new treatments for cancer on mortality has been largely disappointing”**
- Dr. Bailar attacked by the cancer establishment
- <http://www.nejm.org/doi/full/10.1056/NEJM199705293362206>

Schematic of Cell

- **Nucleus:** Location of chromosomes
- **Mitochondria:** Super Powerhouses of Cell: Make ATP with aerobic metabolism (uses oxygen)
- **Cytoplasm of Cell:** where anaerobic metabolism takes place (doesn't use oxygen); also called **glycolysis**



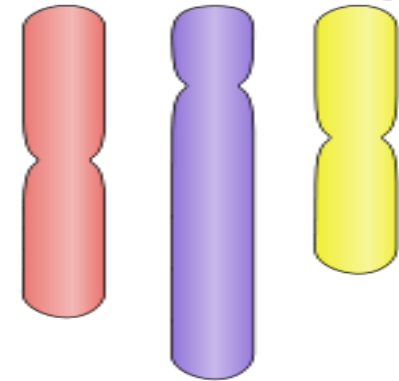
Human Chromosomes and Genes

- A gene is a segment of DNA containing the code used to synthesize a protein.
- **A chromosome contains hundreds to thousands of genes**
- Every **human cell contains 23 pairs** of chromosomes, for a total of 46 chromosomes
- According to the somatic-mutation theory of cancer, **abnormalities in the structure of genes bring about cancer**

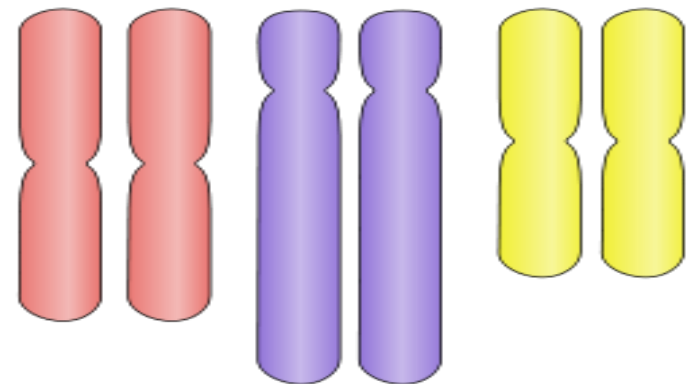
Ploidy (A discussion about chromosomes)

- **Ploidy refers to the number of sets of chromosomes in the nucleus of a cell**
- Haploid = 1 set
- Diploid = 2 sets (**What we have**)
- Polyploidy = More than 2 sets
- **Aneuploidy** refers to disorganized sets seen in Cancer

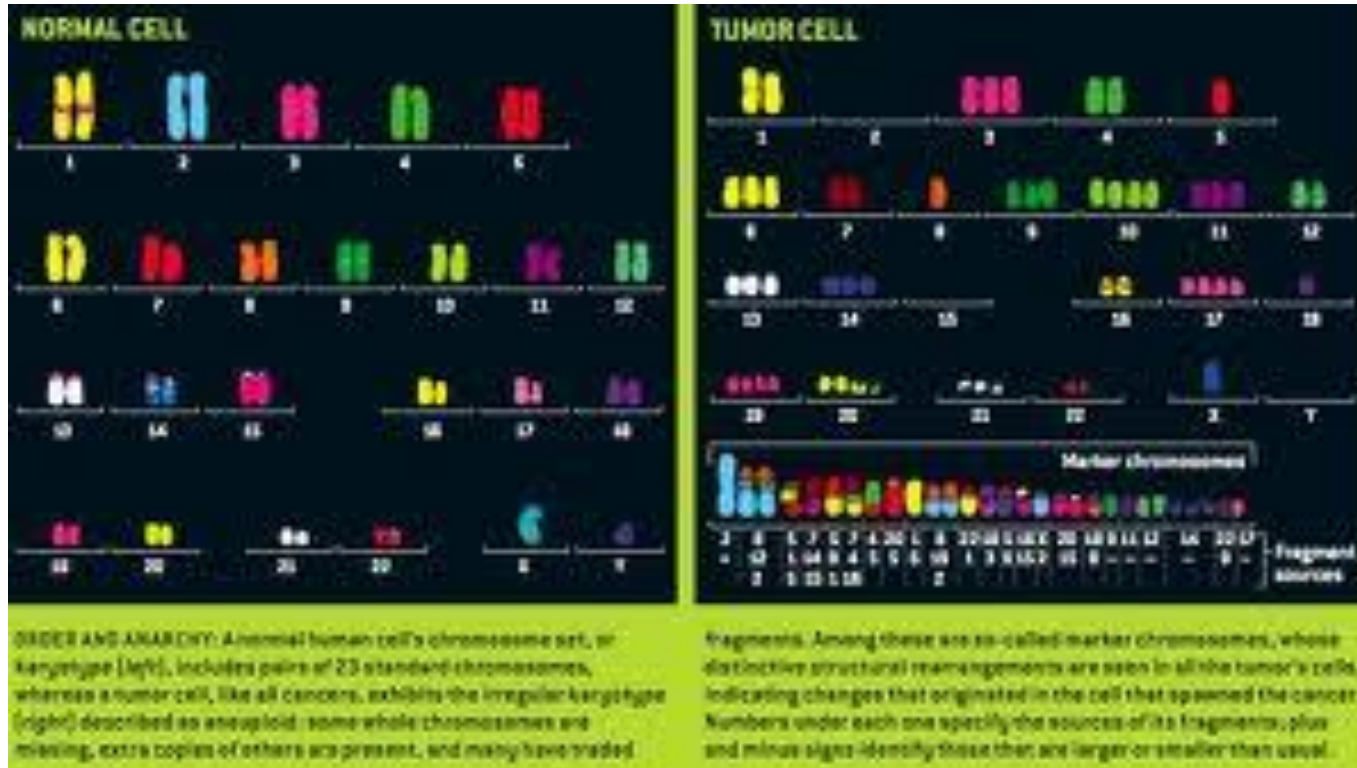
Haploid (N)



Diploid (2N)



Diploidy vs. Aneuploidy: Inside the Nucleus of a Cell

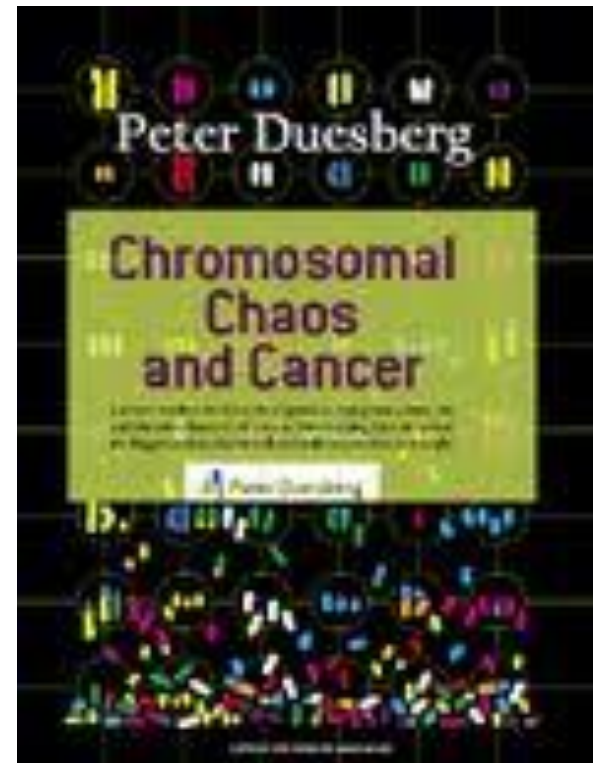


Diploidy-NL

Aneuploidy-CA

Chromosomal Chaos & Cancer: Scientific American May 2007

- **1914**-Boveri & Von Hansemann;
Proposed: **aberrant chromosomes**
cause of cancer
- The nuclei of cancer cells contain
chromosomes, which carry thousands
of genes, are **severely scrambled—
duplicated, broken, structurally
rearranged or missing entirely**
- <https://www.scientificamerican.com/article/chromosomal-chaos-and-cancer/>
- Generally **ignored by NCI** &
conventional oncology



Alternative Understanding of Cancer

- Seeing cancer as a genetic disease results in limitations of treatment
- Cancer can be seen **NOT as a genetic disease** or even a totally disorganized chromosomal disease as presented by Boveri & Duesberg
- Cancer may be viewed primarily as disease due to **damage to mitochondria of the cell & not the nucleus**
- **This theory leads to profound differences in treatment approaches**

Cancer: a Metabolic Mitochondrial Disease-NOT a Nuclear Disease

- Contrary to prevalent scientific oncological consensus, cancer is **NOT** primarily a nuclear genetic disease or even a nuclear chromosomal disease
- Cancer is a **metabolic disease** and not a genetic disease was first proposed in the 1920's by Otto Warburg MD, PhD
- This theory was **rejected by the cancer establishment** from that time to well after the death of Warburg in 1970.

Cancer as a Metabolic Disease

- Warburg won **Nobel Prize** in Physiology or Medicine in 1931 for discovering the mode & action of respiratory enzymes
- Described the **fundamental difference** between normal cells and cancer cells in the 1920's
- Ability of **cancer cells to use oxygen in the presence of oxygen** to produce energy is **impaired (Warburg Effect)**
- Cancer cells form as a result **of low oxygen environment**

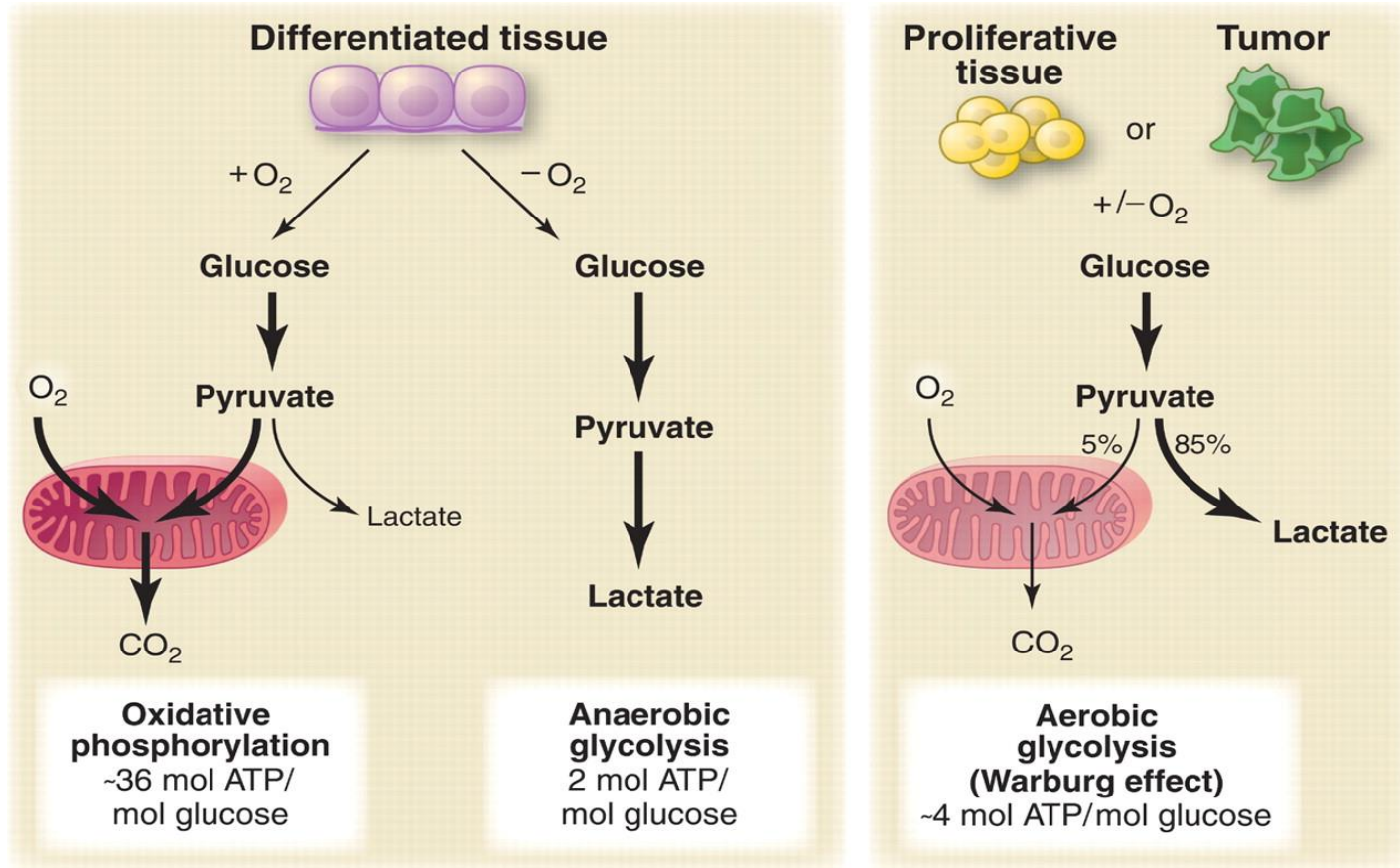


Otto Warburg MD, PhD

Fundamental Difference Between Cancer Cells and Normal Cells

- Energy of most biochemical reactions in the body come from **ATP molecules**
- **Normal cells** produce energy primarily by using **oxygen (90%) and 10% by glycolysis without oxygen)**
- **Cancer cells** produce **about 50%** of their energy (ATP molecules) by **glycolysis**, and **50% using oxygen**. The inability of cancer cells to maximally utilize oxygen in the presence of oxygen is called the **Warburg Effect**
- This metabolic variation is the **main difference**: the chaotic chromosome pattern, unrestrained growth and invasiveness are **secondary** to this difference

ATP Production in a Normal Cell vs. a Cancer Cell; CO₂ & H₂O vs Lactic Acid



38 ATP Molecules

2 to 4 ATPs

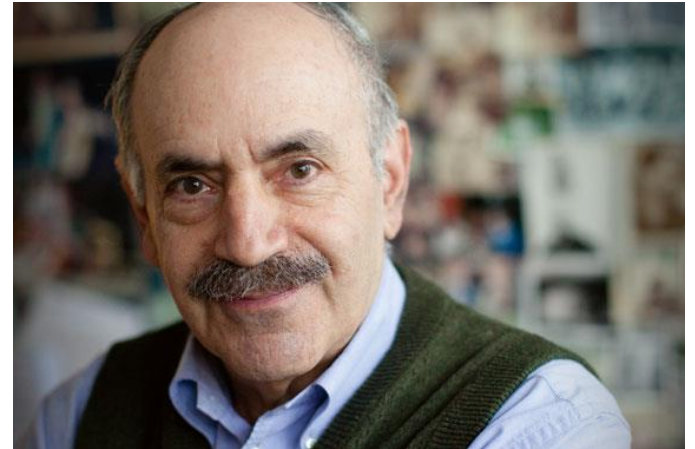
Oxidative Metabolism Needs Less Glucose

- **The Krebs cycle and electron transfer** in the **mitochondria** use oxygen to produce between **30 and 38 molecules of ATP** from 1 molecule of glucose
- Anaerobic metabolism or **glycolysis** produces **2 molecules of ATP from** 1 molecule of glucose.
- Cancer cells use anaerobic metabolism much more than normal cells; whereas normal cells produce ATP with aerobic metabolism 90% of the time cancer cells can do this only about 50% of the time
- Thus cancer cells need more sugar to produce the same amount of energy as normal cells
- **Excessive sugar drives cancer growth**

Robert Weinberg PhD-MIT

Characteristics of Cancer

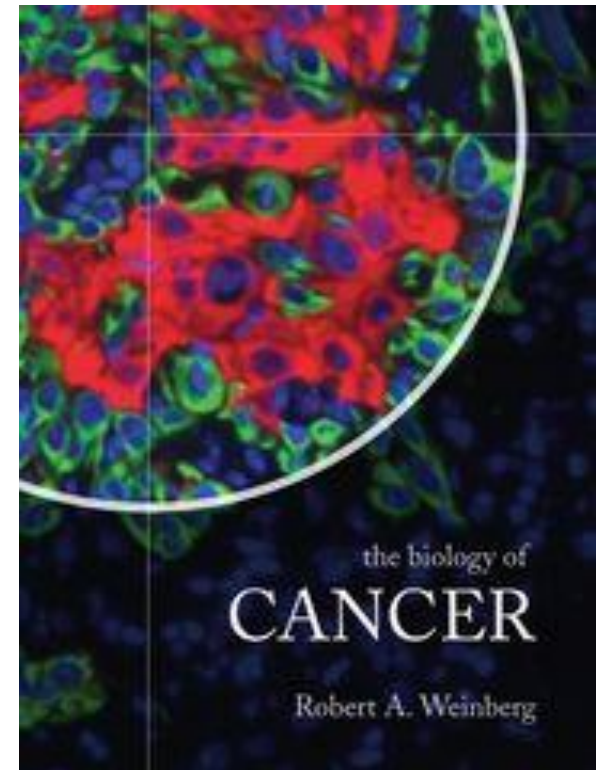
- Major proponent of **genetic cause of cancer**
- **Highly critical of Warburg** thesis that the major difference between cancer & normal cells is CA cell's difficulty in using oxygen to produce energy
- Recipient of many awards
- **Very strong ties to the corporate world**
- Outlined characteristics of CA cells & left out the Warburg Effect
- Home website:
www.weinberglab.wi.mit.edu



Robert Weinberg PhD

Book-The Biology of Cancer 2006: Influential Textbook

- Dr. Weinberg wrote this textbook which has greatly influenced oncology
- Believed CA due to mutations in proto-oncogenes, suppressor genes and DNA Repair Genes
- **Relegated Warburg's research to irrelevant relic of the past**
- Article highly **critical of Dr. Weinberg:**
Windfield J. Abbey, PhD
<http://www.topix.com/forum/de/hamburg/T0L26VL8HI01APU7C>



Peter L Pedersen PhD-Johns Hopkins: **Warburg Advocate**

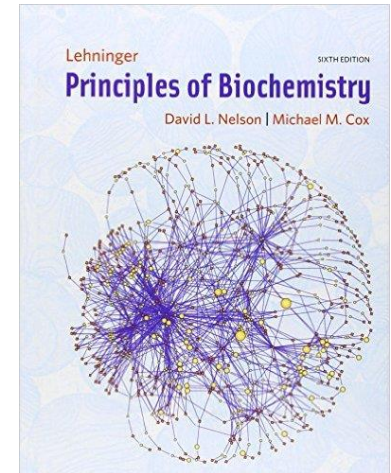
- Brilliant chemist who came to work at **Johns Hopkins** in **1968**
- Published hundreds of scientific articles
- **Protégé** of the famous biochemist **-Albert Lehninger PhD**
- **Lone supporter of Warburg for years**



Peter L Pedersen PhD

Albert **Lehninger** PhD 1917-1986

- **Expert in bioenergetics** of the cell
- Began to work at Johns Hopkins in 1952
- Author of textbook of biochemistry used by college and medical students
- Discovered with Eugene Kennedy that **mitochondria were the site of oxidative phosphorylation** in 1948 in cells
- Was the mentor of Peter L Pedersen PhD at Johns Hopkins



Warburg and Pederson: Understanding CA Cells

- Warburg explained how cancer cells differed from normal cells; difficulty using oxygen even when it was present (**THE WARBURG EFFECT**)
- Pedersen explained how cancer cells did this
- They **overexpressed the enzyme hexokinase 2 (HK2)**, which catalyzes the reaction of glucose to glucose-6-phosphate to keep glucose in the cancer cell (**Large amounts of HK2 in CA cells and hardly any in normal cells**)

Key Discovery about Cancer Metabolism: Worked with Dr. Pedersen

- The high rate of glycolysis in cancer cells is dependent upon **Hexokinase 2 (HK2)** being bound to the outer membrane of the mitochondria (Bustamante and Pedersen, 1977, PNAS; 1981 JBC)



**Ernesto Bustamante PhD
from Peru**

Richard Nakashima PhD: HK2 and VDAC

- **HK2 binds to VDAC** in the outer mitochondrial membrane (Nakashima, Mangan, Colombini **Pedersen** 1986 Biochem)
- **VDAC = Voltage Dependent Anion Channel; Necessary for apoptosis in cells**
- When they bind, **apoptosis (programmed cell death) in cancer cells is blocked**



Richard Nakashima PhD

ATP Synthase: Enzyme that helps make ATP (energy) in all cells

- Hexokinase 2 present in cancer cells and not in normal cells; it is bound to VDAC
- Transporter for ADP and P all hooked together with the ATP Synthase enzyme
- **The ATP Synthase, HK2 and VDAC are all related to each other in the cancer cell**

Hexokinase 2 or HK2

- Hexokinase is the first step in most glucose metabolism pathways, adding phosphate to glucose to form G-6-Phosphate
- There are different forms of hexokinase in nature with hexokinase 2 being one of them
- **Predominant form in cancer cells and drastically over expressed in them; rate limiting step in glycolysis**
- Located on the outer membrane of mitochondria
- Involved in increased rate of glycolysis in CA cells

Hexokinase 2, VDAC and ATPase in Cancer Cells: Pedersen's Lab

- VDAC = Voltage Dependent Anion Channel is **bound to Hexokinase 2 in cancer cells**
- **VDAC is responsible for initiating apoptosis** (programmed cell death), but **can't do this when bound to Hexokinase 2; so cancer cells are immortal; they don't die**
- ATPase Enzyme, which forms ATP is bound to VDAC and Hexokinase 2
- **These 3 structures are the key to cancer cell metabolism**
- Messing up these structures may be the key to cancer control

Collaboration of Peter Pedersen PhD and Young Hee Ko PhD

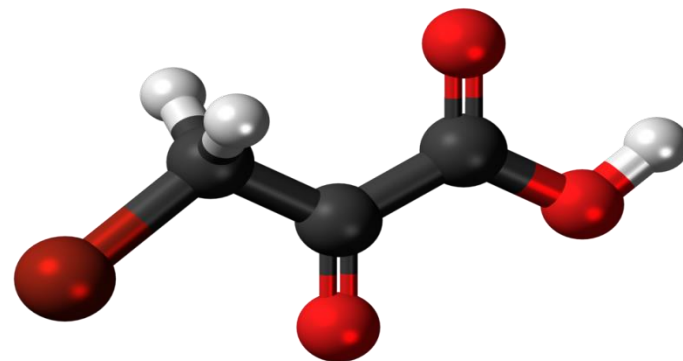
Dr.
Ko
→



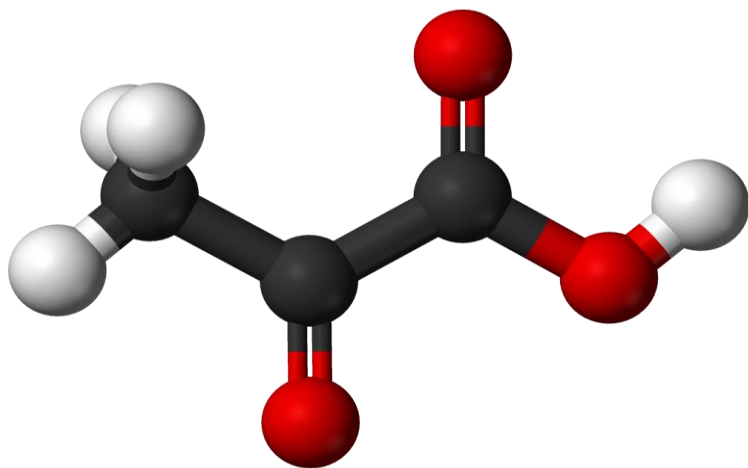
- Young Hee Ko PhD and Peter Pedersen PhD at Johns Hopkins
- The brightest and hardest working PhD that ever worked for Dr. Pedersen; developed **patent** for new cancer treatment
- **Researched the small molecule 3-bromopyruvate for CA**

Pyruvic Acid, 3-Bromopyruvate & Lactic Acid

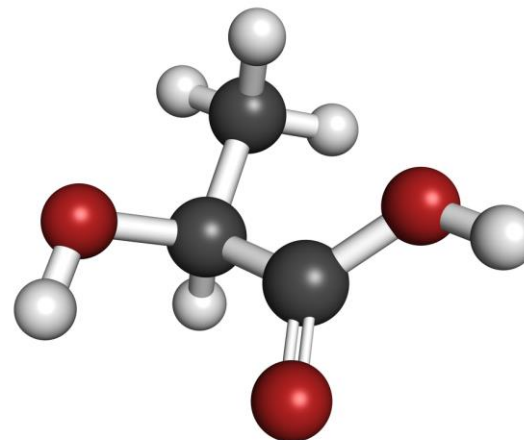
- Carbon-Black
- Oxygen-Light Red
- Hydrogen-White
- Bromine-Dark Red



3-Bromopyruvate



Pyruvic Acid



Lactic Acid

Agents Used to Kill Cancer Cells in Animal Models by Dr. Ko 2001

- L-Glucose
- 2-Deoxy-Glucose
- 5-Thio Glucose 6-Phosphate
- 6-Fluoro-5 Deoxy D Glucose
- 2-Fluoro-2 Deoxy D Glucose
- O-Methyl Glucose
- Lyxose
- Xylose
- **3-Bromopyruvate By far the BEST in Killing CA cells**

Mechanism of How 3-BP Kills CA Cells, But NOT NL Cells

- Lactic acid buildup in cancer cells requires them to have upregulated **lactic acid (monocarboxylate) channels** for lactic acid to exit cancer cells, as low pH of lactic acid would cause the death of cancer cells; these channels are **abundant in CA cells**, but **NOT IN NORMAL CELLS**
- **3-Bromopyruvate** (similar in structure to lactic acid) selectively **enters cancer cells through these sites**, but does not enter normal cells because there are very few of these channels in normal cells (**Trojan Horse Effect**)
- 3-BP combines with and inactivates HX2 & ATPase; thus **preventing Cancer cells from producing energy. BOTH GLYCOLYSIS & AEROBIC ATP production is STOPPED; destroying all ATP in CA cells**

Dosage of 3 Bromopyruvate is Key

- Certainly toxic to humans if given at high enough dosage
- Because of the **lactic acid channels** in cancer cells, much smaller concentrations of 3-BP (**25 Micromolar**) can enter cancer cells and lead to their death, but **no harm to normal cells** because 3BP concentration too small to get into normal cells
- The killing of cancer cell is a combo of apoptosis and necrotic cell death (two ways that cancer cells may die)

Patent for Safe 3-Bromopyruvate (BP) by Dr. Ko

- It is a **very acidic and unstable compound**; so for human use, it needs to be stabilized and buffered; so not acidic
- Dr. Ko was able to do this and this is what **her patent** accomplishes with information about pH buffers, osmolarity, ionic strength and identification of a stabilizing solvent

Scientific Results of **3-BP** for **Treating Cancer in Animals**

- <https://videocast.nih.gov/summary.asp?live=7542&bhcp=1>
This is a 2009 meeting at the NIH; Pedersen discussed Hexokinase 2, VDAC and ATPase and how 3BP can potentially be used as a Cancer treatment (animal studies experiments begin at 53 minutes of video)
- **Mind blowing results in vitro studies and animal studies**
- **See large tumors in animals (rats, rabbits and nude mice) disappear in a few weeks with no toxicity**
- Much more effective and safer than current accepted treatments

Results of Experiments with Rats and Injections of HCC; then 3BP

- 33 Rats; all injected with hepatocellular carcinoma (HCC) cells
- 19 treated **with 3BP cancers disappeared** in all within 3 to 4 weeks & they all lived normal life spans
- Confirmed with PET scans
- 14 Control rats had to be euthanized in 3 to 4 weeks

Results of Studies in Other Animals

- Studies in rabbits and nude mice using transplantable cancers showed **similar mind boggling results**
- **3 BP was far better and much faster and safer than any of the approved treatments for the cancers and animal models used**

Delivery Methods of 3 BP Used in Animal Experiments: **All Worked**

- Intratumoral (IT)
- Intra-arterial (IA)
- Subcutaneous (SC)
- Intraperitoneally (IP)
- Intravenous (IV)
- In humans, likely that oral or sublingual routes could be used

Toxicity of 3-Bromopyruvate in the Curative Doses Used in Animal Studies

- Virtually **all of the animals appeared to be cured of cancer and lived normal lifespans**
- **No animals were lost in the studies**
- Dosages in rats were 0.5 mg to 5 mg per Kg of bodyweight and 1.25 mg per Kg of body weight in rabbits
- **When 10 times the curative doses was administered to animals, there was no evidence of toxicity**
- The curative dosages in these studies were **200 times less than the dosage that show** toxicity in other NCI studies

Possible Harm from 3-Bromopyruvate

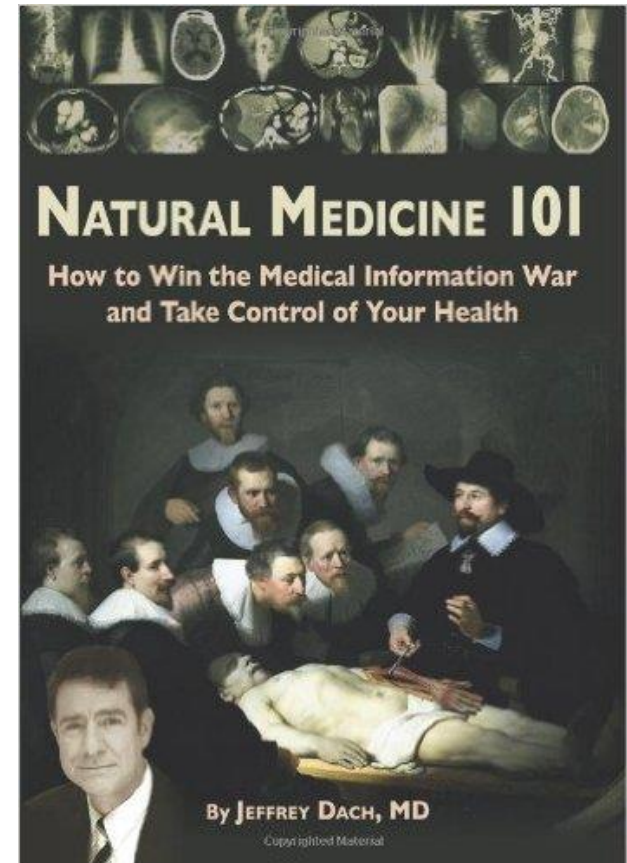
- <http://www.sciencemag.org/news/2016/08/candidate-cancer-drug-suspected-after-death-three-patients-alternative-medicine-clinic>
- <http://blogs.sciencemag.org/pipeline/archives/2016/08/17/3-bromopyruvate-what-a-mess>
- <https://www.ncbi.nlm.nih.gov/pubmed/26054380>
- <http://edzardernst.com/2016/08/fatalities-in-a-german-alternative-medicine-clinic-caused-by-3bp/>
- <https://www.sciencebasedmedicine.org/3-bromopyruvate-the-latest-cancer-cure-they-dont-want-you-to-know-about/> Quackbuster Article

Apparently Effective 3 BP Treatment Being Blocked for Use

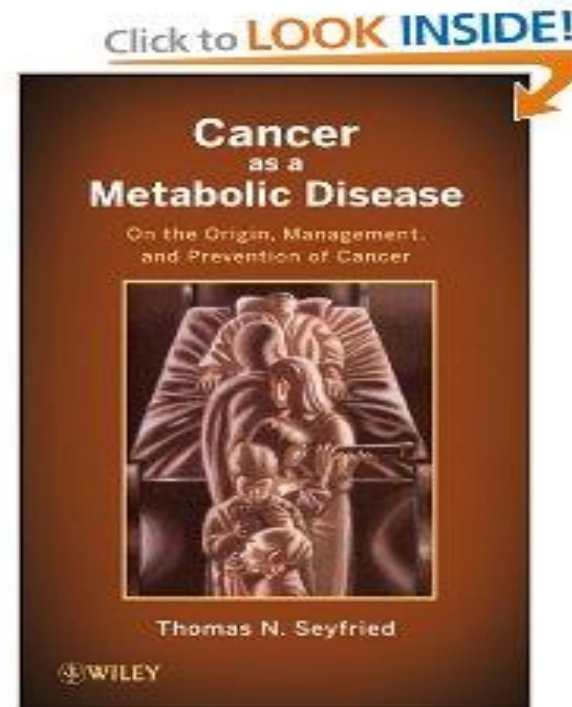
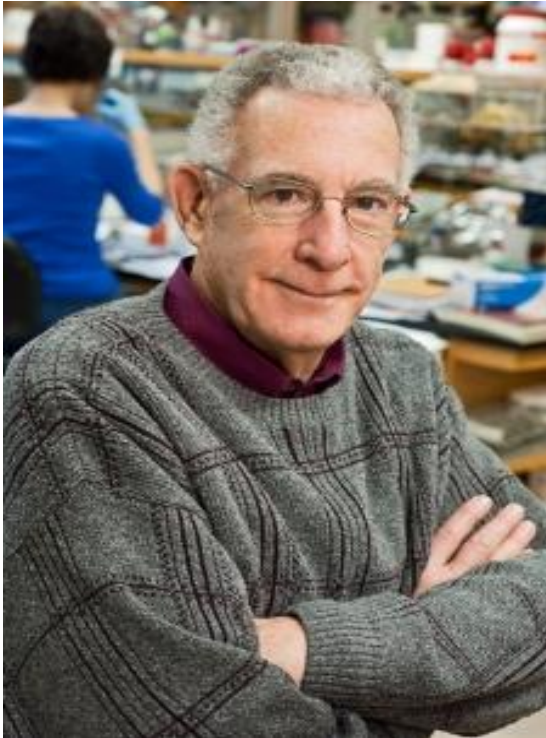
- **Conflict between Johns Hopkins and Dr. Young Hee Ko** over use patent for cancer treatment to make 3BP and similar compounds safe for use
- Dr. Ko, forced out of Johns Hopkins by not giving her lab space; so, she couldn't get grants
- She formed her own company and is trying to find a way to test 3 BP as an anti-cancer treatment
- Her website is:
<http://www.umbiopark.com/tenants/kodiscovery-llc>

Summary of History of Metabolic Theory of Cancer-Jeffrey Dach MD

- Jeffrey Dach MD has an excellent blog and newsletter.
- Brief discussion about the Metabolic Theory of Cancer, including work of Dr. Pedersen and Dr. Ko
- See: Jan 2015 article <http://jeffreydachmd.com/2015/01/cancer-metabolic-disease-jeffrey-dach-md/>
- Author of this book



Book: Cancer as a Metabolic Disease by Thomas Seyfried PhD; Warburg Theory Creeps into Conventional CA Approach



[See Lecture at:](https://www.youtube.com/watch?v=sBjnWfT8HbQ)

<https://www.youtube.com/watch?v=sBjnWfT8HbQ>

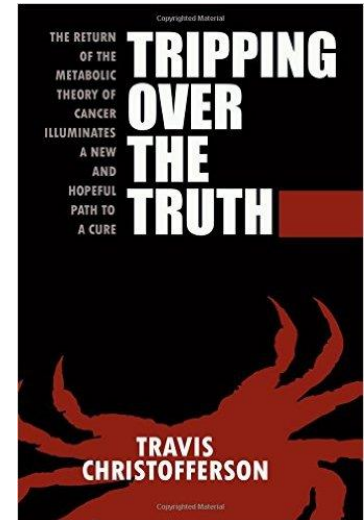
Human Genome Project Sequenced by 2003

- With the assumption that the mutational theory of cancer is correct, scientists believed that it would be easy to find a relationship between common cancers and gene sequences
- **But, this was a Total Failure- Much more complex**
- Numerous gene sequences even within one cancer
- Keep in mind aneuploidy in cancers



New Book 2014-Traces the History of Cancer and the Various Theories

- Shows how **the less than useful theory of the somatic mutational theory of cancer fails to lead to useful treatments**
- **Outlines how the metabolic theory of cancer due to mitochondrial damage results in useful treatments**
- Some of these groundbreaking treatments are discussed in detail
- Promoted by Dr. Mercola



Topics Covered in *Tripping Over the Truth*

- History of development in the theories of cancer (e.g. carcinogens vs viruses vs mutational theory of cancer vs Warburg Hypothesis)
- Major proponents discussed as human beings and the struggles that ensued: Major figures in cancer theory and treatment discussed in detail
- Discusses Drs Pedersen and Ko in some detail
- **Conclusion that only the Warburg Theory offers hope for any real success in Treatment**

Cancer Cells Develop in a **Low Oxygen Environment**

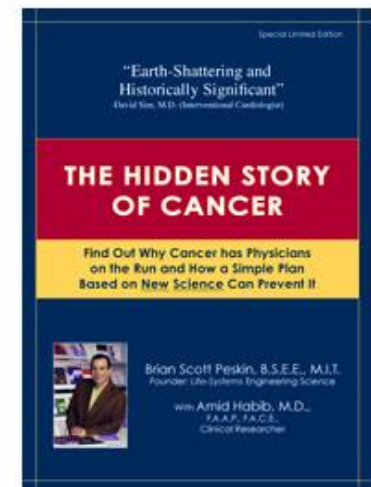
- Cancer cells are not only characterized by being unable to utilize oxygen because of damaged mitochondria, but also develop as an **adaptation to a low oxygen environment**
- This adaptation develops over a long period of time and becomes **irreversible**
- What causes a low oxygen environment in our cells?

Brian Peskin and “*The Hidden Story of Cancer*”

- Peskin’s book explains the Otto Warburg theory of cancer and why we have low oxygen in cells
- **Cancer is stimulated by a low oxygen cellular environment**
- **Oxygen content of cells is low when cell membranes are damaged by toxic chemicals and contain ADULTERATED FATTY ACIDS**
- **Available for a fee at:**
<http://store.pinnacle-press.com/hidden-story-epub.html>



Brian Peskin



Adulterated Fatty Acids Increase Shelf Life and Distort Cell Membranes

- In order to increase shelf life, food processing companies, change the **structure** of the fatty acids in the food (trans FA are one example)
- These “**adulterated fatty acids**” are incorporated into the **cell membranes** throughout the body
- If **adulterated fatty acids replace parent essential fatty acids, oxygen content of cells can be reduced by 50%** (cancer forms over time with 33% oxygen reductions, according to Warburg)

Cell Membranes Require **both Omega 6 and Omega 3** Parent Fatty Acids

- **Cell membranes require both omega 6 (linoleic acid) and omega 3 (alpha linolenic acid) parent molecules in balance**
- Can be **obtained from organic foods or organic oils**
- Oils need to be organic and not heated
- Over time, these organic parent oils will replace the adulterated oils in the cell membranes from processed foods **(OIL CHANGE)**

Ratio of Omega 6 to Omega 3 in Diet

- Myth that society is overdosing in omega 6 because of **failure to distinguish between adulterated to non-adulterated fatty acids**
- **Most omega 6 in food and in cell membranes is adulterated**
- Many studies are **invalid** because of failure to make this distinction
- Peskin says the proper dietary ratio is between 1:1 and 2.5:1, omega 6 to omega 3
- Research of **Dr. Shlomo Yehuda** of Israel argues 4:1 omega 6 to omega 3 is ideal (Body Bio Balance Oil used in our practice); See:
https://www.researchgate.net/publication/227141668_Essential_Fatty_Acids_and_Stress

Adulterated Fatty Acids

- Over the last 50 years or more, the processed food industry has **increased shelf life** by distorting the parent essential fatty acids (so they are not easily oxidized)
- These are **adulterated fatty acids**
- Trans fatty acids are only one example of many ways to adulterate fatty acids
- **Adulterated fatty acids in food become part of cell membranes**
- These cell membranes do not attract oxygen and thus cellular oxygen concentration is reduced, **promoting the development of cancer**

Fish Oil Supplements Not Recommended

- Fish Oil Capsules and liquid are **unphysiologic** and not recommended (one capsule equals several fish meals)
- These longer fatty acids are incorporated into the cell membrane and distort it, worsening function
- Reported benefits are generally short-lived and are **analogous to anti-inflammatory effect of using steroids**
- Both conventional and alternative practitioners prescribe lots of fish oil
- May be useful as anti-inflammatories for a few months at relatively low doses, but many practitioners recommend them for months or years at a time

Major Changes in Food Habits that Have Increased Cancer

- Incorporation of **adulterated fatty acids into our diet** and into cell membranes have reduced oxygen to cells; so has prevalence of toxic chemicals
- **High sugar intake also** drives cancer growth
- The **omega-6 parent fatty acid Linoleic Acid is important** in attracting oxygen to cells
- Studies suggesting we are overloaded with omega 6 probably **invalid** because most do not consider **whether or not they are adulterated**
- **No doubt carcinogenic chemicals may play a role in reducing oxygen to cells, rather than just affecting genes in the nuclei of the cells**

Conventional Cancer Therapies

- Emphasis is removing or killing cancer cells with little attention to adverse effects on normal cells
- Surgery
- Radiation
- Chemotherapy (Also Insulin Potentiation Therapy)
- **Targeted therapies (Most new drugs: Inhibit enzymes or receptors that are involved with cancer growth) BIG DISAPPOINTMENT; BUT LOTS OF HYPE**
 - Generics ending in “mab” are monoclonal antibodies like Rituximab (Rituxin) or trastuzumab (Herceptin)
 - Generics ending in “nib” are small molecules like Imatinib (Gleevec) or tamoxifen

Results of Conventional Cancer Treatments are **Disappointing**

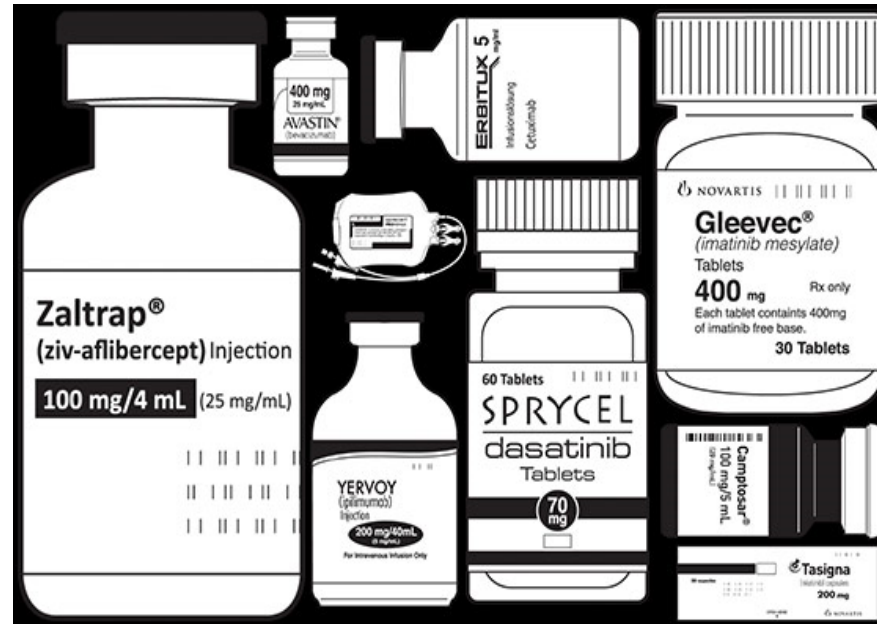
- **Conventional treatment benefits are exaggerated and adverse effects are minimized**
- Our culture demands patients follow conventional guidelines, but thoughtful patients who do their own research often reject many conventional recommendations
 - Ex.-radiation for breast cancer and localized treatment for prostate cancer

Focus of Conventional Cancer Treatment

- **Destroy cancer cells at all costs**
- **No emphasis on lifestyle, good nutrition**
- Patients often told to avoid all nutritional supplements, as they might interfere with conventional treatment
- Measure progress by tumor shrinkage—Not a good measure of progress
- Very expensive, but insurance often covers

From New York Magazine Article in October 2013: **“The Cost of Living”**

<http://nymag.com/news/features/cancer-drugs-2013-10/>



Avastin, \$5,000/month; Zaltrap, \$11,000/month; Yervoy, \$39,000/month; Provenge, \$93,000/course of treatment; Erbitux, \$8,400/month; Gleevec, \$92,000/year; Tasigna, \$115,000/year; Sprycel, \$123,000/year

Downside of Diagnostic Procedures; Main Tool for Assessing Cancer Tx

- Scans emit **considerable radiation**
 - CT Scan 100 chest x-rays
 - PET Scan 500 chest x-rays
- **Size** of tumor **not good marker** for longevity of patient
- **Biopsies cause inflammation** and may stimulate cancer growth if CA present or contribute to the development of cancer

Clinical Trials: Do They Help the Patient?

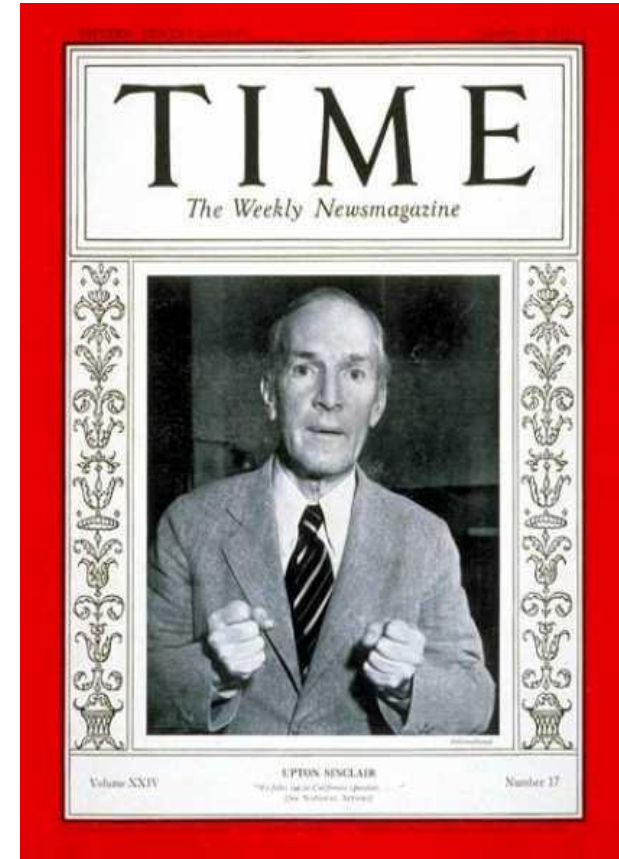
- **Funded by pharmaceutical companies for products** which are **patentable**
- Natural products generally not funded
- **Derivatives of natural products** funded (e.g. vitamin D vs vitamin D analogues), but **not unpatentable** natural products
- For clinical trials, a patient frequently **MUST do standard protocol first** (e.g. radiation and chemotherapy), which drastically reduces chances of responding to drugs that require an intact immune system
- My observation: Clinical trial **investigators** seem to be most interested in the **clinical trial and not the patient**
- Patient **discouraged from using natural substances** along with the clinical trial experimental drug
- **My observation:** patients in clinical trials do better with supplement support
- Rarely see benefits to patients who are doing clinical trials

What **Questions a Patient or Support Person Should Ask**

- Will **survival time** be increased & quality of life be enhanced?
- Pay attention to **relative vs absolute** risks (e.g. if absolute risk of recurrence is 4% and the treatment reduces the risk by 50%, then the patient reduce his absolute risk by 2%)
- What risks are associated with the treatment?
 - Morbidity
 - Mortality
 - Secondary cancers
- Compare with the best available information on available alternative treatments; don't stop with only clinical trials

Upton Sinclair (1878-1968)

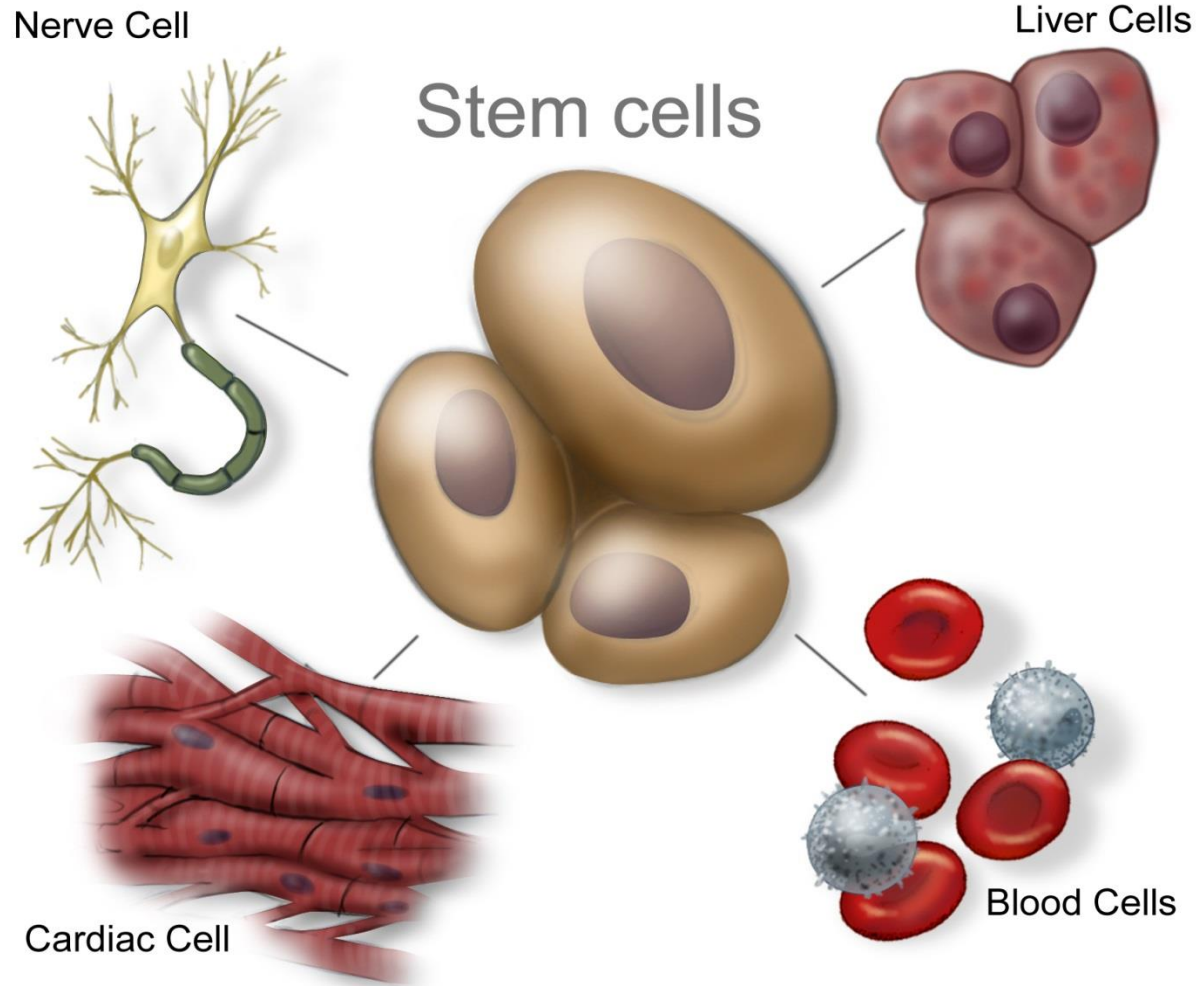
- Author of *The Jungle*, a 1906 novel revealing the harsh living conditions of immigrant workers in the meat-packing industry
- **“It is difficult to get a man to understand something, when his salary depends on his not understanding it.”**
- **Conventional oncology is extremely profitable for oncologists and pharma**
- **Does this help us understand what is happening in health care today and especially with cancer?**



Why Are the Results of Conventional Treatment for **Stage IV Cancers So Poor?**

**CANCER STEM CELLS MAY BE ONE OF THE
MAIN REASONS!!**

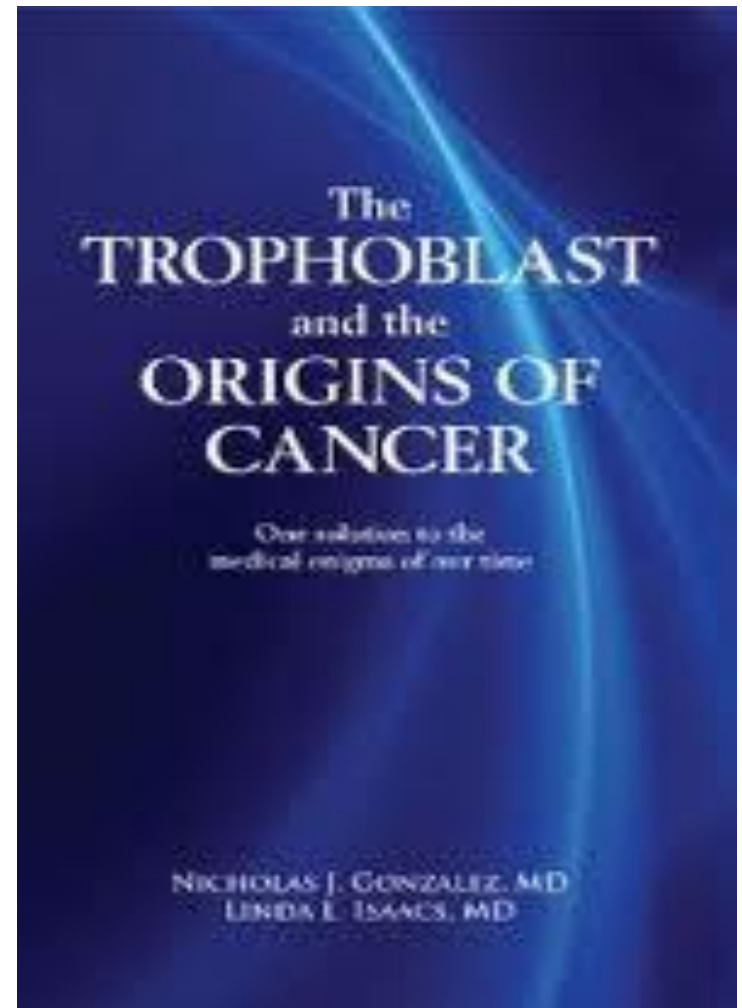
Stem Cells



Origin of Normal Stem Cells

- During embryological development of the fetus, 80% of the **precursors** to the ova or spermatozoa become ova in women and spermatozoa in men
- The rest of these **pluripotent cells** (20% of them) are scattered throughout the body and become the stem cells, which are later used for repair
- This theory was first elaborated by embryologist John Beard MD, PhD in his trophoblastic theory of cancer in 1911. For more about this theory, see the book by the late Nicholas Gonzalez MD: *“The Trophoblast and the Origins of Cancer”* (2010).

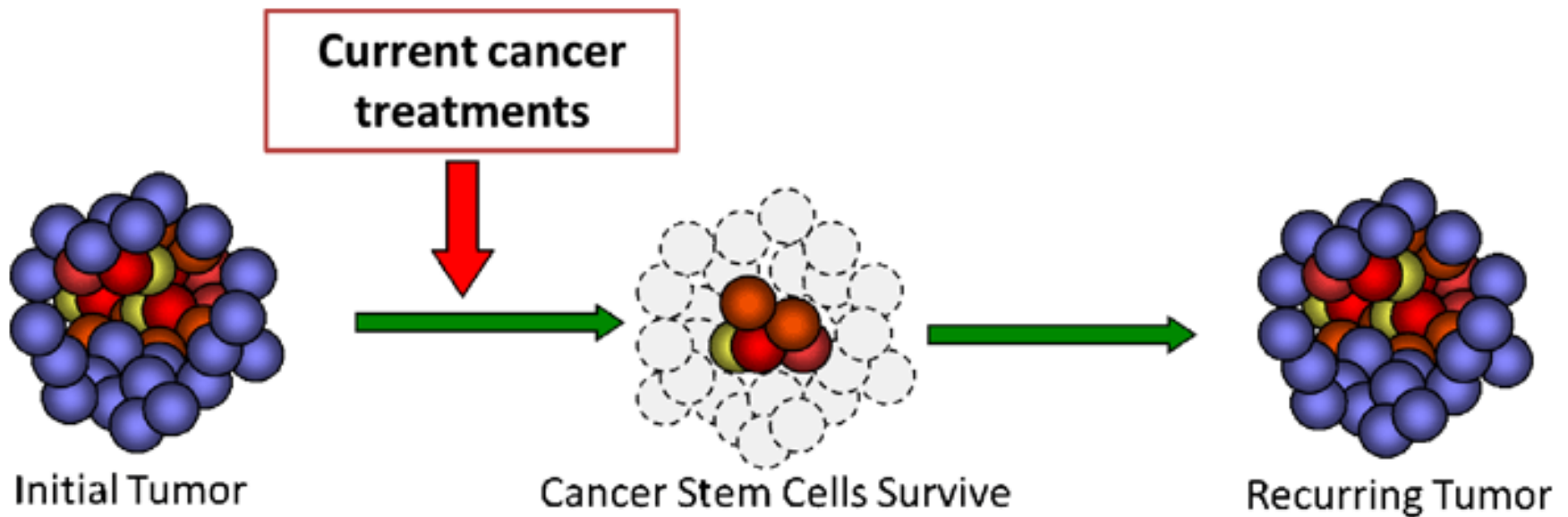
Book: **Trophoblast and Origins of Cancer-** **Nicholas Gonzalez MD**



Cancer Stem Cells: **VERY IMPORTANT**

- Cancer stem cells are **stem cells that have become cancerous**
- **Behave differently from other cancer cells that are not cancer stem cells**
- Cancer cells constitute only **1 to 5%** of solid cancers
- Cancer stem cells are the only ones that **metastasize**
- **Resistant to radiation and chemotherapy**
- Cancer stem cells have been discussed only over the last 15 years of so; they are changing conventional cancer approach
- Shrinkage of tumor not good parameter for assessing treatment results; **upsets how oncology done today**

Cancer Stem Cells Survive and Thrive with Conventional Therapy



Size of Tumor May be Misleading

- Do not be misled into thinking tumor reduction means you are making progress, as you may not be
- “If the cancer stem cell hypothesis is true, treating the majority of dividing cancer cells will shrink a tumor but won’t cure the cancer unless we can target the cancer stem cells themselves. That would **explain why tumor shrinkage—the gold standard for measuring a drug’s effectiveness—doesn’t always translate into longer survival for patients.**”

Daniel Haber, MD and **Director Mass General Hospital Cancer Center**

How To Inhibit Growth of Cancer Stem Cells

- If chemotherapy and radiation do not sufficiently attack cancer stem cells, what does stop them?
- **Anti-inflammatory** agents inhibit cancer stem cell growth?
- Recent research shows that **anti-inflammatory drugs** like aspirin, NSAIDS and Celebrex inhibit cancer stem cell growth
- But, they all have bad adverse effects like bleeding

Many **Natural Substances Block Inflammatory Stimulation** of CSTs

- **HERE ARE A FEW:**

- Curcumin
- Thymoquinone from black cumin seed
- Sulforaphane and other glucosinolates and isothiocyanates from cruciferous vegetables
- Vitamin D
- Boswellia
- Parent Essential Fatty Acids (LA and A Linolenic Acid)
- Stabilized aloe vera extract

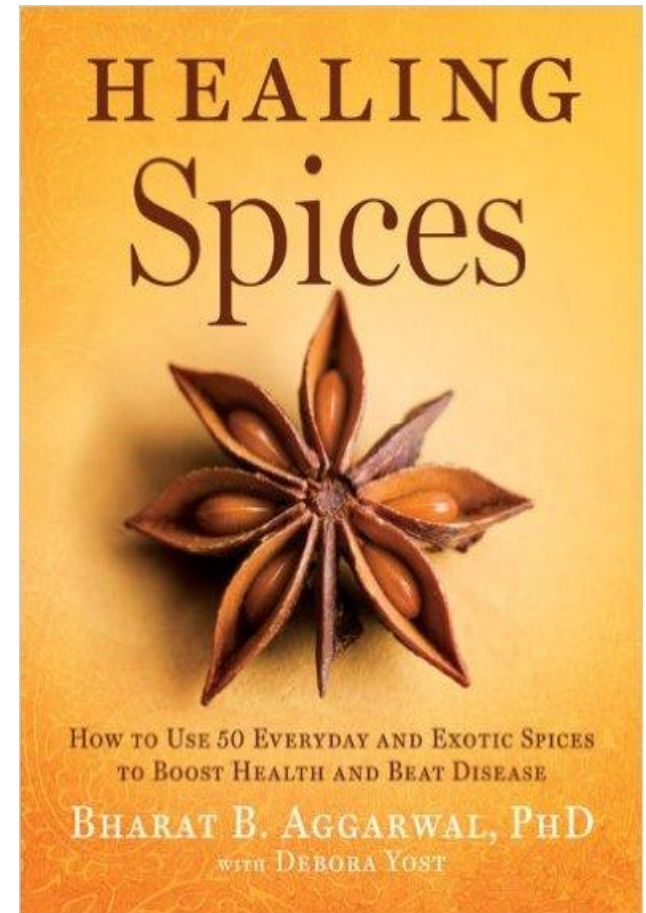
Bharat B **Aggarwal** PhD: Champion of Natural Anti-Inflammatory Herbs

- PhD Biochemistry from Univ. of California, Berkeley 1977
- Genentech-Research from 1980-1989
- Researched anti-cancer properties of herbs-Espec Curcumin
- **MD Anderson** Houston TX-Chief of Cytokine Research Center from 1989-2015-Left recently
- Published over 500 articles
- Recent retraction of 7 articles



Curcumin & Cancer Cells: How Many Ways Can Curry Kill Tumors Selectively?

- 2009 Article in the American Association of Pharmaceutical Scientists
- Extraordinary number of ways that curcumin can do this-Highly technical article
- <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2758121/>

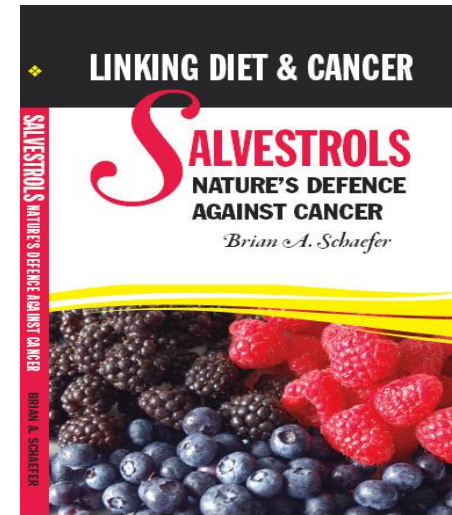


Salvestrols: Another Strategy for Killing Cancer Cells Without Harm to NL Cells

- I learned about Salvestrols about **7 years ago**
- **Discouraged because patients taking Salvestrols COULD NOT take B17, Laetrile, amygdalin**
- Most of my cancer patients were taking B17 orally or IV at that time
- **Received Brian Schaefer's book on Salvestrols-2012**
- **Impressed by theory and case histories**
- **Less controversial than B17 because almost no one knew anything about them**
- Began using Salvestrols **at the end of 2012**

Book by **Brian A Schaefer**-2012

- **History of the discovery of CYP1B1 & Salvestrols**
- **Case histories** of patients using salvestrols
- Schaefer met Burke, Potter & Daniels in the early 2000's & fascinated with CYP1B1 and Salvestrols
- **Brian distributes the Salvestrol supplement in North America**



Professor Dan Burke PhD: Discovered **CYP1B1** High in CA Cells; Not NL Cells

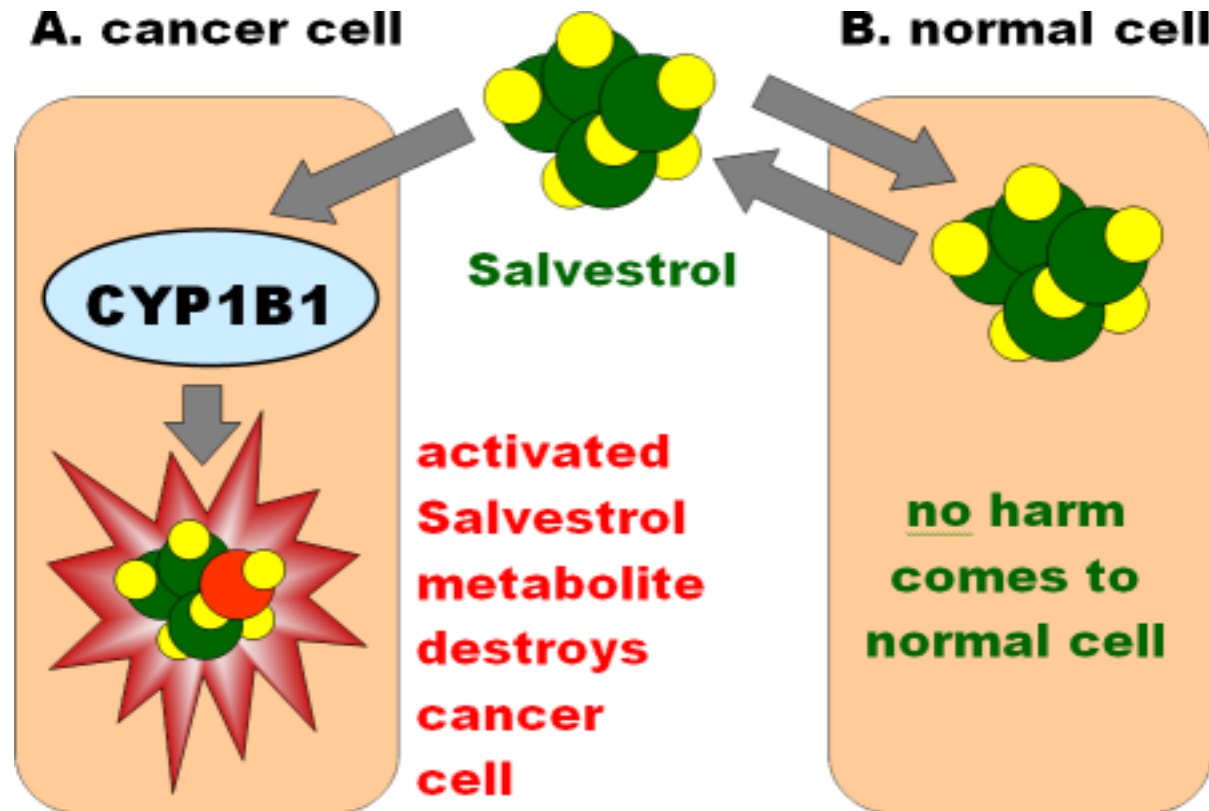
- Degrees in Biochemistry & Drug Metabolism in UK
- **Authored over 200 published research studies**
- **Research in the Cytochrome P450 family of enzymes**
- **Early 1990's-Discovered the enzyme protein CYP1B1 present in cancer cells and not in normal cells (ultimately found in 26 different cancers)**



CYP1B1 & the Discovery of **Salvestrols**

- **Hypothesis:** CYP1B1 protects against cancer
- Research found a group of relatively inert substances found in **organic** plants
- Substances when mixed with CYP1B1 form metabolites that **inhibit cancer cell growth**
- Most people suffer from a **deficiency** of salvestrols, which predisposes them to cancer
- **Salvestrols have no effect on normal cells** which do not have CYP1B1

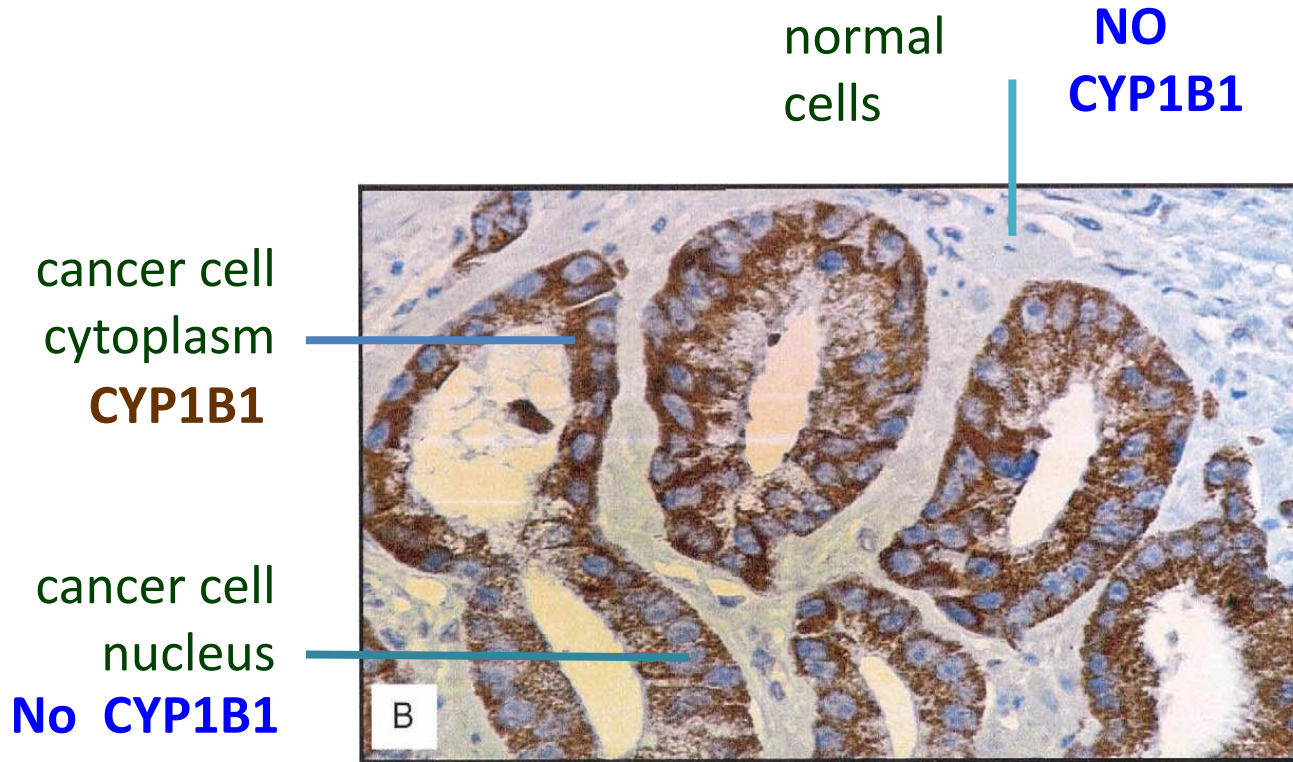
Effects of **Salvestrols on Cancer Cells** & **Normal Cells**



Correcting Salvestrol Deficiencies

- Most people are deficient in salvestrols
- By eating **organic** fruits and vegetables high in salvestrols, a person will convert the salvestrols to metabolites, which are capable of inducing apoptosis or otherwise slowing the growth of cancer cells
- For this to work properly, **inhibitors of CYP1B1 need to be avoided**
- Salvestrol deficiency can be corrected with a diet rich in salvestrols or with a **salvestrol supplement**
- **The CYP1B1-Salvestrol system may be nature's rescue mechanism from cancer**

Prostate Carcinoma Biopsy at 400x Magnif



biopsy chemically stained blue for cell structure (H&E variant)
and brown for CYP1B1 (our immunohistochemical stain)

*Carnell, D. et al. Int. J. Radiation Oncology Biol. Phys. 58: 500-509
(2004)*

Expression of CYP1B1 in biopsies & normal tissues

Murray, et. al. Cancer Res. 57: 1997

Tissue	Normal (# positive / # tested)	Cancer (# positive / # tested)	
Bladder	0/8	8/8	(transitional cell carcinoma)
Brain	0/12	11/12	(astrocytoma)
Breast	0/10	12/12	(invasive ductal carcinoma)
Colon	0/10	11/12	(adenocarcinoma)
Connective tissue	0/9	8/9	(sarcoma)
Esophagus	0/9	8/8	(squamous carcinoma)
Kidney	0/11	11/11	(carcinoma)
Liver	0/8	<i>Not tested</i>	
Lung	0/8	7/8	(squamous carcinoma)
Lymph node	0/5	9/9	(non-Hodgkin's lymphoma)
Ovary	0/5	7/7	(adenocarcinoma)
Skin	0/6	6/6	(squamous carcinoma)
Small intestine	0/5	<i>Not tested</i>	
Stomach	0/10	9/10	(adenocarcinoma)
Testis	0/8	8/8	(malignant germ cell tumor)
Uterus	0/7	7/7	(adenocarcinoma)

Total **0 / 130 (0%)** **122 / 127 (96%)**

CYP1B1 Inhibitors (1)

- **Amygdalin=Vitamin B17 = Laetrile** or sources like bitter apricot kernels (CAN'T USE WITH SALVESTROLS)
- **Resveratrol in high doses**
- Citrus flavanone **naringenin** from grapefruit, especially grapefruit juice
- **Carbon monoxide** (present in cigarette smoke)
- Various **herbicides and pesticides, such as Roundup, as well as many household chemicals**

CYP1B1 **Inhibitors** (2)

- **Herbs, such as: Cannabis, St. John's Wort, Ginkgo biloba, Gin Seng, Hesperidin**
- **Artificial Sweeteners** interfere with the absorption of salvestrols & should be avoided
- **Calcium D Glucarate** may also reduce absorption or interfere with salvestrols getting into cells
- **Metformin** Drug used for diabetes and cancer
- There are undoubtedly others
- Need to **avoid CYP1B1 inhibitors** for them to work properly & interact with salvestrols

Salvestrols-Relative Effectiveness: **Effect on Cancer Cells vs Normal Cells**

Compound:	Classification:	Selectivity score:
Methotrexate	chemotherapy	= 1
S40	salvestrol	= 10
S31G	salvestrol	= 22
S52	salvestrol	= 32
S54	salvestrol	= 1,250
Stilserene	synthetic salvestrol	= 4,304
S55	salvestrol	= 23,000

Phytonutrients found + Enzyme intrinsic = Apoptosis –
in fruit & vegetables to cancer cells cell death

Salvestrols + CYP1B1 = Anticancer agent

Salvestrol **Supplement**

- Some salvestrols > 20,000 to 1
- **Potency measured with Point system**
- Good organic diet contains about **300 points**
- Each capsule is **2000 Points**
- Dose depends on severity of condition



Known Supportive Nutrients to increase CYP1B1 or help Convert Salvestrol to Metabolite

- **Iron**-Check Hgb and Ferritin; the backbone of every cytochrome P450 Enzyme contains iron
- **Magnesium**-400 mg Enhances conversion of salvestrol to metabolite that induces cancer cell death; Supports CYP1B1 activity
- **Niacin or niacinamide-100** mg twice daily; Enhances conversion of salvestrol to metabolite
- **Biotin** 1 mg to 5 mg daily-stimulates CYP1B1 production
- **Selenium** at least 200 mcg
- **Vitamin C** 1 to 3 grams daily in divided dosage; helps with detoxification
- **Vitamin B2**
- **Oxygen is crucial for Salvestrol-CYP1B1 Activity** (attaches to iron)

What is the Evidence that Salvestrols Work in People?

- **No clinical trials or controlled studies; but there are reported and documented case histories**
- There are case studies, reported in 3 journal articles by Brian Schaefer
- There are intriguing case histories reported by patients on Salvestrol blogs on the Internet
- Informal case reports given to developers of Salvestrol, especially in New Zealand
- Our experiences with salvestrols; many seem to benefit

Salvestrols in New Zealand from Dave Vousden-Distributor of Salvestrols

- **Began to study this in March 2012**
- Had a positive personal experience with salvestrols
- **Has worked with 23 children or adolescents with terminal cancer-mostly brain or CNS, but some with blood cancers**
- **2 have died**
- **21/23 are stable or improved on Salvestrols**



Schachter Center Cases

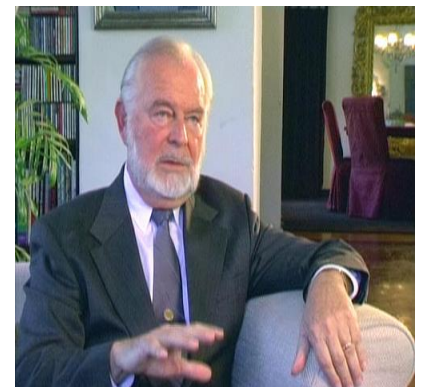
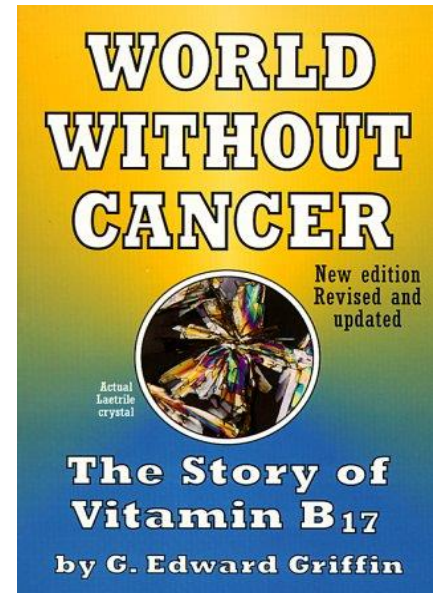
- **Lymphoma with brain involvement**-did well for 3 years, with no conventional Tx during this time; however, recent recurrence and exploring various options
- Anal melanoma after surgery-no recurrence-4 years
- **Glioblastoma Multiforme**-living 39 months from time of diagnosis, working full time, but struggling with a recent recurrence 5 months ago
- **Many prostate CA and breast Ca pts** doing well

Salvestrols at Schachter Center for Complementary Medicine (SCCM)

- Using them for only about 45 months; some patients using as preventive 1 or 2 capsules daily
- We estimate that 350 patients have taken or are taking salvestrols at SCCM
- **No apparent side effects noted even in very sensitive people**
- **Not a panacea, as some patients with severe metastatic disease didn't make it**
- Much more work needed to see limitations of treatment and how well they work with other non-toxic therapies; but results so far very promising

Amygdalin = Laetrile = Vitamin B17

- From mid 70's through 2012, most of our cancer patients used B17
- Watched narrated film strip: 1974; stimulated my interest
- Book available (originally as 2 books and now as 1)
- Family member developed cancer-1975-stimulated my quest



Amygdalin=Laetrile=Vitamin B17

- **Cyanide** containing nitriloside
- Nitrilosides found in many foods-such as prunasin family, millet, buckwheat, bitter apricot kernels
- **Structure-2 sugars, benzaldehyde, cyanide**
- **Non-toxic when molecule intact**
- Cyanide and benzaldehyde toxic when released
- **Cancer cells have enzymes to release cyanide and benzaldehyde, whereas normal cells DO NOT** (beta glucosidase)
- **Can't be used with salvestrols because inhibits CYP1B1**

Amygdalin with 2 Sugar Molecules bound to benzaldehyde & cyanide



Amygdalin-2

- Normal cells lack enzymes that remove sugars from the amygdalin molecule
- Normal cells have enzymes to detoxify cyanide and benzaldehyde
- Cancer cells lack these enzymes
- Amygdalin tends to attack cancer cells and leave normal cells alone
- Used orally and as IV infusion
- See Ed Griffin's book: *World Without Cancer* and chapter in Ralph Moss' book: *Cancer Industry*
- **See Youtube video:**
<https://www.youtube.com/watch?v=QeYMduufa-E>

Integrative Evaluation of the Cancer Patient at the Schachter Center

- **Approach is very different from that of the conventional oncology approach**
- **Focus on patient as a person**
- **Assess strengths and weaknesses**
- **Evaluate support system**
- Full clinical history & physical examination
- Assess current lifestyle factors
- Assess patient's ability to make changes
- Nutritional and Laboratory testing
- Assess dental issues (amalgams, root canals, etc)
- Discuss **conventional treatment options** (pros and cons)

Integrative Cancer Therapies May Include:

- **Dietary suggestions-cornerstone-whole** foods, organic when possible (reduced toxins-increased nutrients-phytonutrients as information)
- Avoid poor quality food and toxic exposures
- **Lifestyle changes**-Exercise-Stress Management-Sunlight Exposure-Sleep
- Oral nutritional supplements
- Injectable programs like C drips, ALA drips
- Prioritize changes to be made
- Help patients **assess conventional treatment options**
- Help patients **get off medication when possible**
- **Use acupuncture, PT, chiropractic and other non-toxic approaches to manage pain and support the immune system**

Dietary Principles for Cancer Patients: Where is the Agreement?

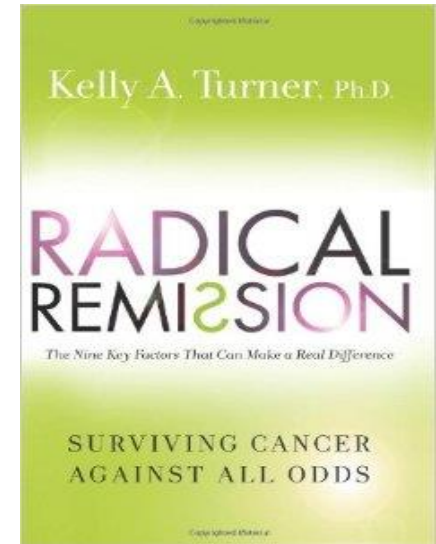
- **Avoid all processed foods** and refined carbohydrates
- **Avoid foods containing artificial chemicals,** artificial sweeteners, various additives
- Avoid adulterated fats
- Use organic foods whenever possible
- Some raw vegetables should be included
- Drink pure water free of fluoride, chlorine and other additives and impurities

What are the **Dietary Controversies?**

- What should be the **relative amounts of proteins, fats and carbohydrates** (e.g. high fat, low carbohydrate OR relatively low fat and high unprocessed carbohydrates with lots of fiber?)
- How much of diet should consist of veggies and fruits?
- Should fruits be allowed? If so, how much and what types? (Ketogenic diet can be high in good fats and low in carbohydrates)
- Should raw vegetable juices be used?
- Individualize for particular patient-Plans are not fixed or rigid; consider patients likes and dislikes

Radical Remission: **Surviving Cancer** **Against All Odds**

- At UCLA, Berkeley: getting PhD
- Shocked to learn no one studying “spontaneous remissions”
- Spontaneous remissions occur without help from conventional CA treatment
- **10 month trip to 10 countries to interview healers**
- **Interviewed 20 survivors and then 80 more; studied 1000 cases**



9 Characteristics of Cancer Survivors in Radical Remission-Kelly Turner PhD

- Radically changing your diet
- Taking control of your health
- Following your intuition
- Using herbs and supplements
- Releasing suppressed emotions
- Increasing positive emotions
- Embracing social support
- Deepening your spiritual connection
- Having strong reasons for living

Keith Block MD: Integrative Cancer Program-Prime Representative

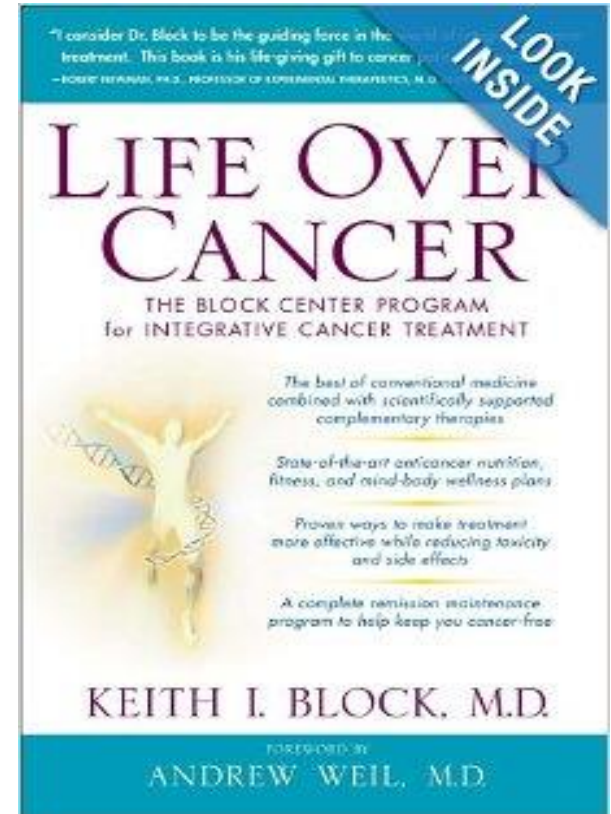
- **Uses the best of conventional medicine combined with scientifically supported complementary therapies**
- Proven ways to make treatment more effective while reducing toxicity and side effects
- His Center in Chicago is widely regarded as the best integrative cancer center in the USA



Keith I Block MD

Book: “*Life Over Cancer*” by Keith Block MD

- Some excellent recommendations regarding lifestyle factors, including nutrition, nutritional supplements, exercise and stress management
- Strong recommendations for conventional cancer treatments along with lifestyle changes
- Block’s advice: Patients should certainly do conventional treatment and then reduce toxicity with lifestyle recommendations
- Dr. Block emphasizes a low fat diet, which is currently begin questioned



Problems with Integrative Oncology

- Focus of integrative oncology is how can we improve results of oncologists by improving diet, adding supplements, acupuncture, etc...
- **Conventional approach is taken as a given**
- The question most often asked is **will the nutritional supplements interfere with conventional treatment?**
- Rarely asked is: **Will the conventional treatment make alternative treatment results worse?**

My Heretical Suggestion

- Although the **results of integrative oncology are probably better than using conventional alone, might alternative treatment be better than the combo?**
- Why do we have to accept conventional treatment as a given?
- **Might some patients do better without including any conventional treatment?**
- I suggest that perhaps we need to consider this approach to prevent and treat cancer

Case History of Lung Cancer, Stage IIIB with Surgery Alone

- 57 year-old woman consulted us in **2007** after having a lobe of her left lung removed for **Non-Small Cell CA of lung**
- Found incidentally on pre-op for shoulder surgery
- Told she was **stage IIIB because of the 3.1 cm size**
- Advised to have chemotherapy: **She refused.**
- Large doses of oral Vitamin C, B17, vitamin D, many other supplements, good diet, IV C drips from once a week to once a month
- Retired recently at age 66. Feels great. Continues current program, **9 years after diagnosis of Stage IIIB lung cancer**
- Question: **If she had chemo, would she have done as well?**

Standard of Care for Stage I & II Breast Cancer: Is it all justified?

- Lumpectomy
- Radiation therapy
- Chemotherapy in some cases
- Anti-hormonal therapy if cancer is estrogen receptor positive (tamoxifen or aromatase inhibitor)
- Possible monoclonal therapy drug (like Herceptin) if HER2/Neu positive
- **Let's first focus on radiation!**

Radiation for Breast Cancer: A Questionable Standard of Care

- What is the basis for the automatic recommendation of radiation for any woman undergoing a lumpectomy for breast cancer?
- Reduces risk of a recurrence in the same breast
- **Does NOT reduce regional recurrence or distant metastases**
- **No impact on overall survival with increased deaths from causes other than breast cancer.**
- Harmful effects (e.g. heart damage, lymphedema) may occur later
- **Many of our patients choose to not do radiation for breast cancer to the dismay of conventional specialists: we have many long-term survivors**

Some Patients Choosing to **Avoid** **Some Portions of Standard of Care**

- Patients left with difficult choices and need to make decision with insufficient information
- Frequently need to use common sense and what feels right for them
- Many uncomfortable going against conventional suggestions
- Lots of anxiety associated with making decisions about cancer treatment-both conventional and alternative

Sometimes Conventional Cancer Therapy is Helpful-Patient with CLL

- First seen at SCCM in 2012 at age 52
- Rep of pharmaceutical industry
- Diagnosis of chronic lymphocytic leukemia 2010 clinically well, but numerous nodules throughout body
- Didn't want chemotherapy
- Treated with our protocol of dietary suggestions, oral supplements, LDN, IV C drips; but developed problems
- **In 2013, began to require blood transfusions every few weeks because of severe anemia and low platelets, but refused chemo**
- Retires at the beginning of 2015
- In August 2015, finally accepted chemotherapy (Treanda) along with our program with great results; no more blood transfusions, platelets normal; Minimal side effects

Benefits of Sometimes **Combining** Conventional and Alternative Tx

- At age 65, now 70, a male computer consultant first consulted with us in 2011
- Diagnosis was **metastatic NSMC lung cancer with bone metastases to spine and possible liver mets (Stage IV)**
- Had **radiation to bone** to reduce pain
- **CEA at time of diagnosis was around 300**
- **Referred to us by oncologist (“won’t hurt”)**
- **Tarceva (erlotinib)** started along with our program

Combining **Conventional and Non-Toxic Support** Program-2

- **Our program:** C drips with amygdalin (B17, Laetrile-both oral and IV), D, K2 (MK4), extensive supplement list
- Continues to work and function
- **CEA down to 5 by end of 2011 (from over 300 at start of treatment) and has remained like this until now**
- Tarceva (erlotinib) stopped working and the chemotherapy agent Alimta started
- **Jaw infection successfully treated with surgery & 40 HBO treatments. How much did this help cancer Tx?**
- **Continues to do well, working and acting in a play**

Other Procedures at the SCCM

- **Check Vitamin D status**
- Check Iodine status (Random urine iodine) and optimize
- **Optimal fat soluble vitamins of D, A and K2 (MK4)**
- Monitor bone density
- Well-balanced vitamin-mineral formula (one good one is **Daily Essential Nutrients** from Nutratak)
- Use of probiotics
- Balanced essential fatty acid formula

Studies Suggesting **Link of Vitamin D Levels and Cancer**

- 3,000 studies indicating that serum 25 Hydroxy **vitamin D levels inversely associated with cancer**
- 75 epidemiologic studies
- Vitamin D upregulates or downregulates about **3,000 genes (generally anti-inflammatory and anti-cancer genes)**
- Number of genes affected keeps rising!!!
- Vitamin D receptor protein with vitamin D is necessary for producing **Macrophage Activating Factor (MAF), which stimulates the innate immune system to attack cancer cells**

Professors at Harvard Medical School at Mass General Hospital: Vit D Review

- Sadeq A. Quraishi MD-Anesthesiologist and Critical Care work
- Carlos Arturo Camargo Jr. MD, DrPH; Emergency Room
- **Journal of Restorative Medicine, Vol 1, Number 1; Sept 2012; pp 9-23.**
- Vitamin D and Major Chronic Illness
- Excellent review article with 123 references
- Reviewed **Pubmed-indexed articles in English from Jan 2003 to June 2012**
- **No affiliation mentioned in paper**



Robert P Heaney MD: Creighton University

- <http://www.youtube.com/watch?v=-Za2H5oTXJY>
- Vitamin D: Nutrient; Not a Drug
- There have been several successful randomized trials, but for different problems, including: osteoporosis, osteoarthritis, fall/neuromuscular function; insulin sensitivity, pregnancy outcomes, periodontal disease, various cancers, tuberculosis and hypertension

Vitamin D and the **DINOMIT Model**

- See video: DINOMIT Theory of Cancer (17 minutes)
- <http://www.youtube.com/watch?v=3GM0CnO6-ds>
- Cedric Garland Dr. PH-University of CA-San Diego
- All of the following stages of cancer are affected in a positive direction by up or down regulation of genes
 - D = Disjunction: Uncoupling of Cells
 - I = Initiation
 - N = Natural selection
 - O = Overgrowth
 - M = Metastasis
 - I = Involution
 - T = Transition



Cedric Garland Dr. PH

Cancer Immunotherapy with Macrophage Activating Factor

- <https://truemedmd.com/2013/06/cancer-immunotherapy-with-macrophage-activating-factor/>
- **GcMAF** discovered by in 1990 by Dr. Yamamoto at the Socrates Institute in Philadelphia (Activates innate immune system)
- 3 Successful Clinical Trials with breast, colorectal and prostate cancer
- May be able to make at home: See: <https://gcmf.se/bravo-probiotic-assayed-and-proven-to-contain-gcmf/>



Jeffrey Dach MD

Testing and Administration of D3

- Serum 25 Hydroxy **D-Best way of determining the nutritional status of Vitamin D3** (Reference range in USA 30 to 100 ng/ml which equals 75nmol/L to 150 nmol/L in some other countries (Conversion factor Multiply ng/mg by 2.5 to get the nmol/L))
- Our goal for Cancer patients is about **80 ng/ml**
- Administer only D3 and not D2 which is inferior
- **Test frequently.** Keep the 25 Hydroxy D level below 100 ng/ml
- Make sure that Vitamin K2 (MK4) is used along with Vitamin D; (dosage should be about 45 mg per day), especially if bone density is low
- Vitamin A works with D as a team. We use about equal amounts of A, as long as patient does not develop headaches or dry lips

Article: **The Anticancer Effects of Vitamin K**

Alternative Medicine Review; Vol. 8, No. 3; 2003

- Associate of Jonathan Wright MD
- Most interesting to me is his **review of K2 (MK4)**, including in vitro studies, a few controlled trials and case histories
- **Most supplements contain K2 (MK7)** rather than MK4
- <https://www.researchgate.net/publication/10591470> The anticancer effects of vitamin K



**Davis Lamson ND;
Colleague/Jon
Wright MD**

Vitamin K2 (MK4) and Cancer

- **Both in vitro and in vivo studies show that K2 (MK4) has anticancer effects**
- **K2 (MK4) inhibits cancer cell lines** of liver, colon, leukemia, lung, stomach, lymphocyte, nasopharynx, breast, oral epidermoid, osteosarcoma, glioma, leukemic blast cells
- No effect on normal bone marrow cells
- **Several impressive case reports from Japan, using MK4 in doses of 45 mg or more per day**
- For basic information about MK4 vs MK7, see: https://en.wikipedia.org/wiki/Vitamin_K

Evaluate **Iodine Status and Supplement Carefully**

- Check random urine iodine; most Americans are deficient in iodine; WHO says below 100 is deficient
- Iodine needs to be supplemented carefully
- Safe and effective protocols for iodine administration exist
- **Milligram quantities of iodine necessary for anti-cancer effects**
- See my published papers at our website for a **well referenced section on iodine:**
www.schachtercenter.com

Mirko Beljanski PhD

- Useful Supplements to Support Cancer Patients
 - **Extracts with anti-cancer and anti-inflammatory properties (Pao V and Rovol V)**
 - **RNA primers** that increase WBCs & Platelets, which may help cancer patients undergoing chemotherapy and radiation (**Real Build**)
 - Special extract which may reduce fibrosis from radiation (**Ginkgo V**)
- See: www.naturalsource.com
- 20th Anniversary of Natural Source Conference coming up in NYC on Dec 3 2016. See website for more information
- I will be giving a short lecture there



1923-1998



Sylvie Beljanski

Fermented Wheat Germ Extract (FWGE) and **Metatrol: Mate Hidvegi PhD**

- Dr. Albert Szent-Gyorgyi was upset about development of mustard gas chemotherapy drugs after seeing the effects of them during his personal World War I experiences
- His motivation to find answers for new cancer treatments accelerated after his wife & daughter got cancer and died
- He believed that natural quinones & related compounds could enhance oxidative metabolism in normal cells and inhibit anaerobic hyper metabolism in cancer
- 1996-Mate Hidvegi developed FWGE called Avemar



Mate Hidvegi PhD

Mechanisms of Action of Avemar

- **Inhibits glycolysis and enhances aerobic metabolism**
- Immune modulation
- Induces apoptosis
- Anti-angiogenesis
- Anti-metastatic
- Inhibits cancerous DNA synthesis

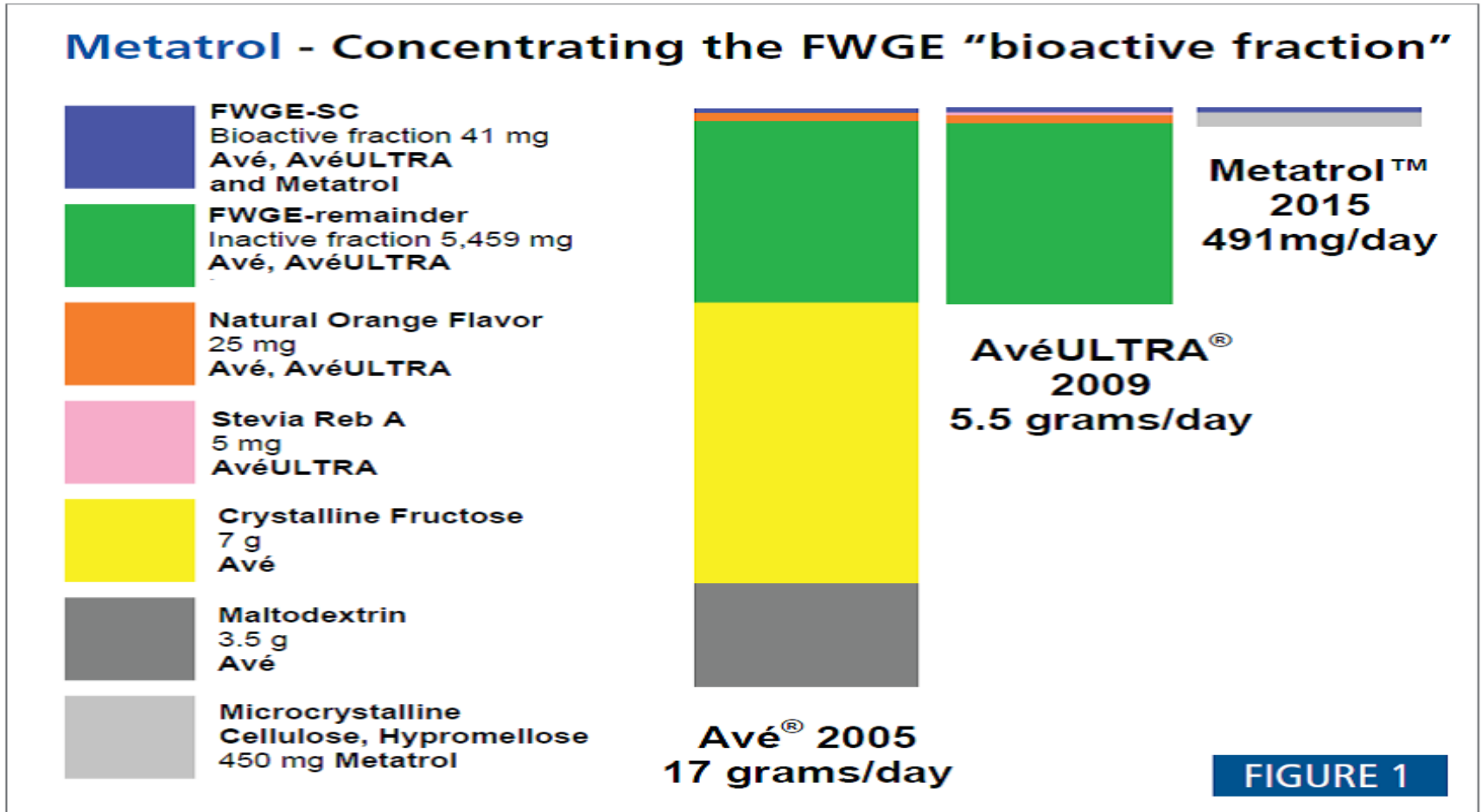
Controlled Human Studies Showing Benefits of **FWGE** in Cancer Pts

- Primary colorectal cancer patients in the *British Journal of Cancer*
- Stage III melanoma patients at high risk for recurrence in the *International Cancer Congress*
- Oral cancers: Stage II, III and IV
- See: www.avemar.com for the references

Metatrol (Concentrated Form of Fermented Wheat Germ Extract-FWGE)

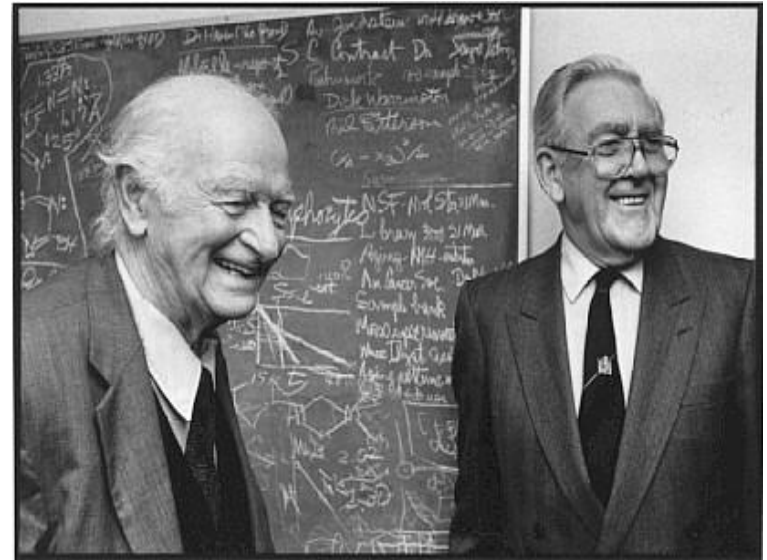
- Developed by **American BioScience Corp.**
- Metatrol: short for “metabolic control”
- Supports oxid. metabolism; inhibits anaerobic metab.
- AvéULTRA FWGE is non-toxic and so is Metatrol
- Concentrates the bioactive molecules in FWGE and filters out gluten and non-active molecules.
- Dosage: **2 capsules for patients < 200 lbs**; 4 capsules per day for people over 200 lbs. Can take with other supplements
- Contains < 100 molecules with very low molecular wts
- Take Metatrol anytime. See: <http://www.metatrol.com/>

Metatrol Compared to Other Forms of Fermented Wheat Germ Extract (FWGE)



Cameron, Pauling & Vitamin C for Cancer Patients

- **10 grams of IVC daily for 10 days followed by 10 grams orally in terminal cancer patients**
- Review of their 1976 paper in *Proc. Natl. Acad. Sci.* –
 - **4-fold increase in life expectancy**
 - They speculated that “larger amounts than 10 gr/d might have a greater effect.”



Linus Pauling PhD & Ewan Cameron MD

Charles Moertel MD-Mayo Clinic

Studies Contradict Pauling

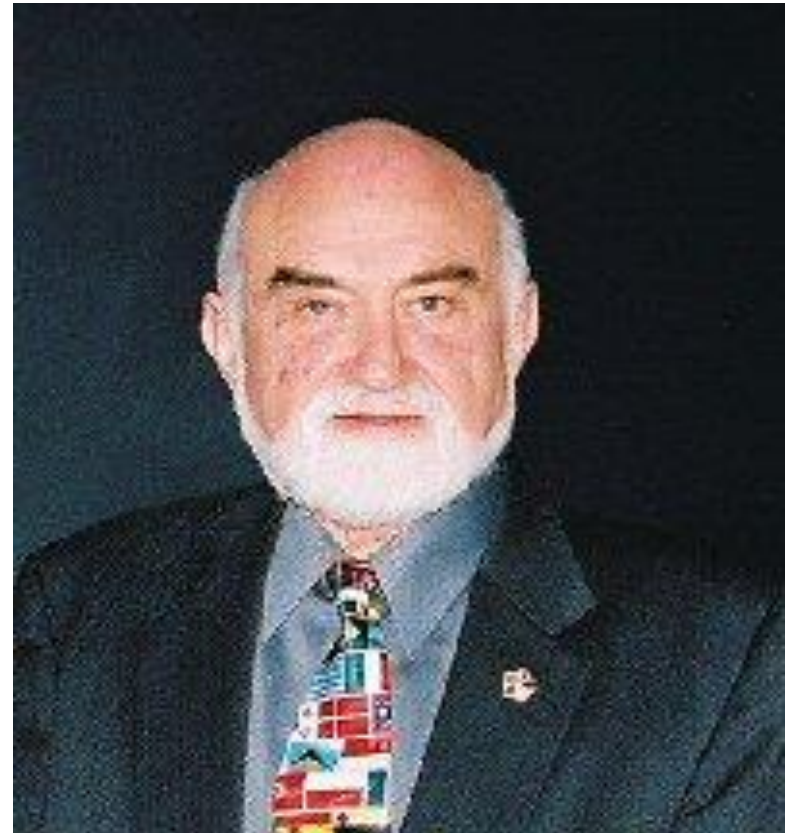
- Long term opponent of alternative medicine
- Conducted negative study on amygdalin
- Also, **conducted a few negative Vitamin C studies-criticized strongly by Pauling in the NEJM, for not really following Pauling protocol**
- one study, patients given 10 grams of vitamin C until they showed no evidence of tumor regression; then off C and given chemotherapy
- **Dr. Moertel's studies considered proof of C being useless for cancer patients by the oncology establishment and organized medicine**
- He died at age 66 of lymphoma



Charles Moertel MD
1928-1994

Hugh D. Riordan MD & IV Vitamin C

- **Pioneer in use of IV Vitamin C for cancer patients**
- Founder-Riordan Clinic in Wichita KS
- The Hugh D. Riordan Professorship in Orthomolecular Medicine at Kansas Univ. School of Medicine



1932-2005

Possible Mechanisms of Action of High Dose IV C for Cancer

- Induces **hydrogen peroxide** formation in the extracellular space between cells
- Kills many types of cancer cells; but not normal cells
- **Normal cells** have high **catalase** which converts hydrogen peroxide to **oxygen and water**
- Dosage of Vitamin C-50 to 100 Grams or more
- Administered over 2-3 hours
- **Dosage based on Vitamin C levels** (350 to 400 ng/ml)
- Different effects in cancer cells which have low catalase levels; so H₂O₂ converted to toxic hydroxyl radical
- Treatment one to three times a week or more
- Works with some forms of chemotherapy

Pro-Oxidant Properties of Vitamin C: Direct Tumor Cytotoxicity

- High dose IV C generates **hydrogen peroxide-enters CA cells-forms hydroxyl radicals**, kills CA cells
- Healthy cells neutralize peroxide with catalase; low in CA cells
 - *Benade et al, Oncology 23:33, 1969*
 - *Koch et al, J Cell Phys 94:299, 1978*
 - *Riordan et al, Med Hypoth 44: 207, 1995*

High Dose IV Ascorbate (Vit.C) Drip to Treat Cancer at Schachter Center

- **Used at our Center-more than 35 years**
- Published clinical cases show treatment plausible
- **We no longer aim for high serum levels of C, as clinically patients do as well with 50 to 60 grams of IV C**
- Other centers have made similar observation
- Administered over 2-3 hours
- Treatment one to three times a week or more
- When given to patients receiving chemotherapy, on another day, patients report feeling better

Vitamin C & Cancer: Is there a **Role for Oral C**: Steve Hickey PhD and Hilary Roberts PhD

- <https://www.csom.ca/wp-content/uploads/2013/03/Vitamin-C-and-Cancer-Is-There-A-Use-For-Oral-Vitamin-C-28.1.pdf>
- Journal of Orthomolecular Med. Volume 28, Number 1, 2013
- **Oral vitamin C at high dosage levels may be more important than C infusions**



Steve Hickey, Ph.D.

Vitamin C Urinary Strips

- Dip stick with colored end in urine sample
- At 30 seconds, compare color to ones on container
- Goal is to keep the color at the highest level of vitamin C all the time (yellow)
- But prevent diarrhea



LDN & Bernard **Bihari** MD (1931-2010)

- In the 80's worked with heroin addicts in NYC; many had AIDS
- 1984-Naltrexone approved
- Blocks highs from heroin & alcohol in approved dose 50mg
- People felt awful because it blocked endorphins
- Discovered AIDS patients had very low endorphins (20% of NL)
- Showed **Naltrexone in doses from 1.5 to 4.5 increased endorphins** Called LDN



LDN results in Endorphins Enhancement & Better Immune Functioning

- Stimulates the production of opioid receptors
- **Enhances natural killer cells**
- **Improves immune functioning**
- AIDS patients lived longer
- Strong anti-cancer effect with LDN
- Dr. Bihari noted this first in a friend who had remission of lymphoma with LDN
- Subsequently, many other cancer patients responded
- Seems to be useful for many people with autoimmune diseases, like MS and Crohn's disease

Low Dose Naltrexone

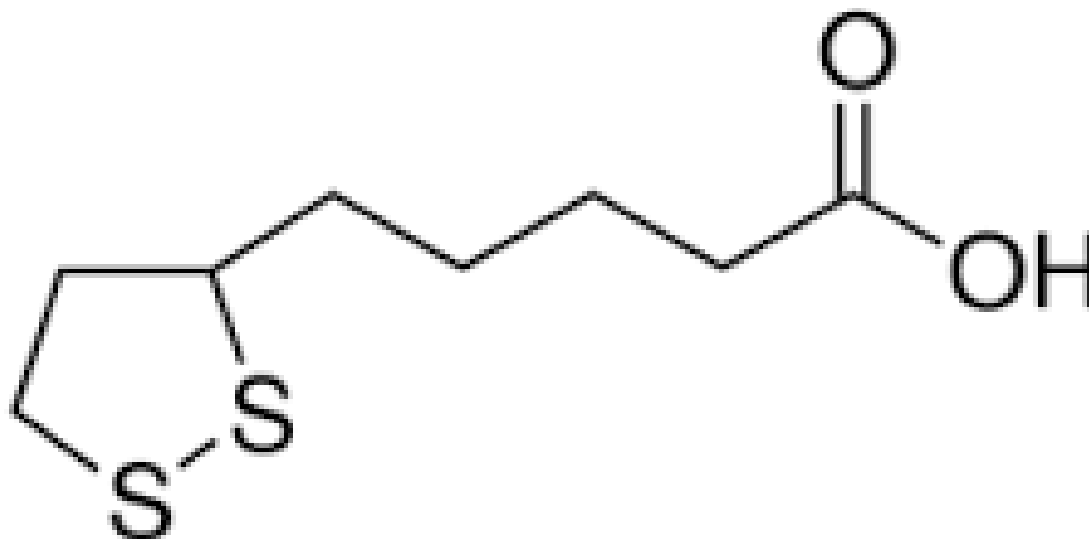
- <http://www.lowdosenaltrexone.org/> Updated
- www.ncbi.nlm.nih.gov *Govt Information*
- <http://www.drwhitaker.com/what-is-low-dose-naltrexone/> Article in Whitaker Newsletter 2008
- <http://www.lowdosenaltrexone.org/gazorpa/interview.html> This is Dr. Kokayi's transcript
- <https://www.sciencebasedmedicine.org/low-dose-naltrexone-bogus-or-cutting-edge-science/>
(Critical Article)

Bert Berkson MD, PhD-Alpha Lipoic Acid and Low Dose Naltrexone

- http://www.townsendletter.com/Dec2007/alp_halipo1207.htm Article by Bert Berkson MD, PhD
- ALA 1948-First discovered; 1951 structure determined
- Early 1970's Berkson successfully treated mushroom poisoned patients with IV ALA
- 2006-Long term survival of Pancreatic CA with mets (78 months in 2009); (Ref in above article)
- 2009-3 more cases of Pancreatic CA: good results (Ref in above article)



Alpha Lipoic Acid Structure



Protocol for Alpha Lipoic Acid and Low Dose Naltrexone for CA Patients

- **Alpha Lipoic Acid (ALA) 300 to 600 mg IV twice a week**
- **Low Dose Naltrexone 3 to 4.5 mg orally at bedtime**
- Oral ALA 300 mg twice daily
- Selenium 200 mcg orally twice daily
- Milk Thistle 300 mg 1 cap 4 times daily
- B complex (3 high dose capsules daily)

Oxygen Baths In Budapest, Hungary

- New technology that increases oxygen in tissues with 3 baths daily
- Anecdotal reports of advanced cancer patients that have recovered
- Relatively inexpensive
- <http://www.kaqun.eu/products-services/bath-therapy>
- New Center in Las Vegas



National Center for Complementary and Integrative Health (NCCIH) and the National Cancer Institute (NCI)

- <https://nccih.nih.gov/health/cancer/camcancer.htm>
- “A substantial amount of scientific evidence suggests that some complementary health approaches may help to manage some symptoms of cancer and side effects of treatment. For other complementary approaches, the evidence is more limited”
- **Unproven products or practices should not be used to replace or delay conventional medical treatment for cancer.**
- **I disagree with this last principle**

How Far Can We Go With a Minimum Amount of Conventional Tx?

- Insights of “Radical Remission”
- Knowledge of **nutrition, detoxification, exercise and stress management**
- **View cancer as a metabolic rather than a genetic disease**
- New insights involving **cancer stem cells**
- Awareness that entire medical system and research today is fueled by **profits and patentable approaches (No Clinical Trials involving these alternative approaches and they may not be possible)**
- **Patients may need to learn to buck the system**

Summary

- More and more patients are becoming **educated as to options** regarding a cancer prevention and treatment program
- Many are choosing to forego the standard of care with careful monitoring
- We attempt to help educate the patient and partner with them to navigate their care
- **See handout for more information, details and some important links.**

Schachter Center on 2nd Floor; Suffern NY in Rockland County-45 min from NYC

