CAMBRIDGE INTERNATIONAL INSTITUTE FOR MEDICAL SCIENCE

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THE PHYSICIAN'S CONCISE GUIDE TO:

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Good News: It's Not Genetic

Dedicated to advancing and publicizing breakthrough discoveries in the health sciences

There is simply no one better in the 21st century at developing practical health-related solutions based on the world's leading medical and nutritional science. **"Science – Not opinion" is Brian's trademark.** When Brian is through explaining a topic it is "case closed!" When he says it, you "can take the information to the bank!"

Unlike most of his peers' recommendations, Brian's health and nutritional recommendations have stood the test of time. **Brian has never had to reverse or significantly alter any of his medical reports—reports that have tackled everything from the dangers of soy, to the wrongly popularized need for fiber in the diet, to his warning about the potential harm of supplementing with copious amounts of omega-3**. In 1995 he published the report "Fiber Fiction" and finally, eleven years later, others in research are acknowledging the silliness of recommending fiber in the diet of a human being. Brian's latest crusade is to warn of the dangers of excess omega-3 (in particular, fish oil) and how it will lead to increased cases of skin cancer. The list goes on and on…

Brian received an appointment as an Adjunct Professor at Texas Southern University in the Department of Pharmacy and Health Sciences (1998-1999). **The former president of the University said of his discoveries: "...His nutritional discoveries and practical applications through *Life-Systems* Engineering are unprecedented."** Brian earned his Bachelor of Science degree in Electrical Engineering from Massachusetts Institute of Technology (MIT) in 1979. Brian founded the field of *Life-Systems* Engineering Science in 1995. This field is defined as *The New Science of Maximizing Desired Results by Working Cooperatively with the Natural Processes of Living Systems*. To many, Brian is THE MOST TRUSTED AUTHORITY ON HEALTH AND NUTRITION IN THE WORLD.

Brian continues to be a featured guest on hundreds of radio and television shows both nationally and internationally. His sheer number of accomplishments during the last decade of the 20th century and into the 21st century are unprecedented and uniquely designate him as the #1 authority in the world of what really works and why. Forget listening to the popular press or most popular so-called health magazines. Their editors simply don't understand the complicated science that they write about – they merely "parrot" what everyone else says without independent scientific verification. Their recommendations often have no basis in reality of how the body works, based on its physiology.

Brian has dedicated his life to provide the truth – which is almost always opposite to what everyone says. Here's why Brian is the #1 man in America to listen to when it comes to your health.

Newsflash 2011: **More Major Embarrassment and FAILURE— Traits *aren't* handed down in the manner described by Mendel. The so-called "ruined genetics" account for no more than 10% (the vast MINORITY) of disease: Everyone can now rest easy—it's RARELY genetic…**

The fledgling field of ***epigenetics*** (environmental factors) is now showing how two organisms with **identical genetic sequences** can have **different characteristics** because of **heritable *non-DNA factors* (like methyl groups)**, which are common reactive chemical entities that ***alter the behavior of genes***.

The search for simple "genetic mutations" as the cause of disease predictably fails again. As you shall discover, in contrast to getting better and allowing better explanations with time, the "genetic theory of disease" gets worse with time. Even the most brilliant researchers will never accomplish their goals because they all start in the wrong place. Mutations are ***caused by*** epigenetic adulteration (environmental causes altering the behavior of genes but not necessarily the structure). The *prime* cause of cancer is decreased cellular oxygen, which, of course, also alters the genetic material.

2011 Revelation
"So indeed, **the genome contains far more inconvenient truths** than was supposed a decade ago. ***The very idea of what we inherit and what we pass on has changed***."[1]

The first 2011 article[2] clearly shows how the "promise" of looking at genetics fails and worries its scientists, as the whole field is looking worse and worse for actually finding solutions. It states:

1. Jon Cohen, "The Human Genome, a Decade Later," *Technology Review,* January/February 2001, pages 40-44.
2. Stephen S. Hall, "The Genome's Dark Matter," *Technology Review,* January/February 2011, pages 53-57.

"Evidence is growing that ***your DNA sequence does not determine*** your entire genetic fate. …

"**Large-scale genomic studies over the past five years or so have mainly failed** to turn up common genes that play a major role in complex human maladies. …

"More than **three dozen specific genetic variants** have been associated with type 2 diabetes, for example, but together, they have been found to **explain about 10 percent of the disease's heritability** [90% ***failure***]—the proportion of variation in any given trait that can be explained by genetics rather than by **environmental influences**.

"…That shouldn't have affected the daughter mice at all, because females don't inherit the Y chromosome. But the presence of that **uninherited DNA** in the previous generation exerted a profound effect on many of the more than 100 traits tested in the two sets of female offspring, whose own DNA was exactly the same.

"… In a separate but similarly **unsettling line of experiments**, Nadeau and his collaborators are finding that the **impact of any given gene depends on all the other genes surrounding it**. Nadeau is hardly the only scientist to identify these complex gene-gene interactions. …

"Nadeau recalled giving a talk about all this at a conference several years ago and discovering afterward that a…**prominent Ivy League geneticist** in attendance, whom he declined to name, ***simply couldn't get the heretical ideas out of his head***. 'He came up **to me after the talk**,' Nadeau recalled, 'and said, **"This can't be true** in humans." '

"I ran into him at breakfast the next day and he said, ***'This can't be true in humans.'*** And then when the meeting was over, I ran into him at the airport, and he came up to me and said, ***'This can't be true in humans***.'

"Or as another leading genome scientist once told Nadeau at a meeting in Europe, '**If transgenerational[3] [non-Mendelian] effects happen in humans,** ***we're screwed***.'

3. Transgenerational traits appear in DNA of parents or grandparents but not in current generation, yet can be influential and can be passed to subsequent generations. This runs counter to Mendel's patterns of inheritance.

"That is to say, discovering that his findings apply to humans **would decouple a person's DNA sequence from her or his traits,** ***calling into question*** **much of the work scientists have done to find the genetic sources of complex diseases** and develop drugs that target them.

"…The group analyzed **54 recently identified genetic locations** that statistical analysis suggested were the main contributors to height **and discovered that all of them together accounted for only** ***4 to 6 percent*** **[94%** ***failure*****] of the height variance** in thousands of subjects.

"The reason is not known, but the larger message is that ***the effect of any variant*** **seems to depend on its genetic** ***surroundings***. 'We see that effect all the time,' Nadeau says. ***'All the time! Everywhere, in every trait we look at.'***

"It may sound like a dramatic break, but Nadeau says **these exceptions to Mendelian patterns** should come as no surprise. 'Mendel picked the traits where he would get simple genetics,' he explains. 'What Mendel said is true. But it's **not the whole truth**.'" (Emphasis added.)

The next article, titled "The human genome a decade later,"[4] states:

"In June 13, 2010, the *New York Times* ran a front-page story about the hyping of genomics. Headlined "A Decade Later, **Gene Map Yields Few New Cures**…."

"Recent studies, however, have emphasized the extraordinary power of **DNA regions that do not hold the code for a protein itself but, rather, control** the on/off switches that direct gene '**expression**,' or the extent to which that protein is actually produced."

The fledgling field of ***epigenetics*** is showing how two organisms with **identical genetic sequences** can have **different characteristics** because of **heritable non-DNA factors like methyl groups**, which are common reactive chemical entities that **alter the behavior of genes**.

"So indeed, **the genome contains far more inconvenient truths** than was supposed a decade ago. ***The very idea of what we inherit and what we pass on has changed***."

4. Cohen, pages 40-44.

… Duke University geneticist David Goldstein argued in a critique published in the April 23, 2009, issue of the *New England Journal of Medicine*, that "*common variation is packing much less of a phenotypic punch than expected*." A study on height, Goldstein noted, had *found 20 variants* that together explained only about *3 percent [97% **failure**]* of the variation found in humans. These sorts of results have led some researchers to scratch their heads about "missing heritability" and the "dark matter" of the genome."

'This "omic" science has corrupted us,' says Brenner, who won a Nobel Prize in 2002 for leading a project that four years earlier completed the first entire sequence of a multicelled organism, the worm *Caenorhabditis elegans*. '**It has created the idea that if you just collect a lot of data, it will all work out** [like genome mapping].'"

'I think we should be doing *genetics, not genomics*,' says Brenner. 'When you do genetics, you are focusing on function. When you do genomics, these are just letters and numbers. *Nobody bothers about the connections*.'

" 'Let's start with the patient and work backward,' says Altshuler. 'Something that has profoundly diminished the biomedical impact of [genomic] work is the *unquestioned faith that everything can be learned in reductionist approaches* and model systems.' "

(Emphasis added.)

◗ *Life-Systems* Engineering Science Commentary

The great news is that heredity plays a much smaller role than we've been led to believe, and (shockingly to many) genes can be altered by the environment (both in positive and negative ways). That alteration can affect the **traits** of generations to come, although it might not appear in the **structure** of the genes themselves. *Conclusion: our behaviors, exposures, and remedial actions can affect our childre*n. This may seem like a hereditary factor, though not in the way Mendel describes—there can be external causes to current and future traits that we can take responsibility for (like PEO deficiency and PEO supplementation).

We can be comforted as well that *inheritance is a very minor cause of disease*. The statement, "The very idea of what we inherit and what we pass on has changed," tells it all. **In contrast to getting better and allowing better explanations with time, the "genetic theory of disease" gets worse with time; the opposite of any valid scientific theory**.

The scientists focusing on genetics were misled. The promise of the genome and the entire field of genetics are based on fallacies. The scientific truth was already given to us decades ago by the medical genius Otto Warburg, MD, PhD. *Life-Systems* Engineering Science makes significant discoveries that lead to practical solutions because this science does indeed connect all the dots, like the Nobel Prize-winner Sydney Brenner stresses.

Genetic manipulation has been the buzz for years now. We hear almost daily about the Human Genome Mapping project and how mapping the sequence of all the human genes is supposed to help us find "disease genes" and lead to the cause and cure for many diseases.

But let's backtrack for a moment. Few doctors or researchers acknowledge that in the early 1900s there was an overall extremely low level of cancer in this country. Don't believe anyone who says there was just as much cancer then as now, but it just wasn't tracked. Physicians and the medical journals *did* track cancer rates at that time, and so did our government. One hundred years ago, only about 3% of us developed cancer! Yet cancer has skyrocketed to a current staggering 50% of the population today.

For cancer or other diseases to be caused genetically by the passing of genetic mutations from one generation to the next, one or more of our genes would have had to mutate into "cancer (or other disease) genes" and be passed along from generation to generation through reproduction. **But there simply hasn't been enough time for a "genetic mutation" to be passed to 50% of the population.** A genetic mutation would take, at the least, many hundreds of years to become significant. So the likelihood of any type of genetic-based component, such as a mutation, reaching 50% of all Americans in 2003, when it was only 3% in 1900, is almost nonexistent.

Passing of Genes During Cell Division

When scientists speak of "cancer genes" and diseases being passed along via genetics, they also commonly refer to another means of passing genetic traits: the process *within one single organism or human body* in which genes are duplicated and passed to a new cell during cell division. Scientists speak of the possibility that a gene mutation in one cell may then be passed along when the cell divides, and spread a disease throughout the body.

But many scientists and researchers believe that, despite the massive hype that has been put forth to persuade the public that genetic answers to disease are just around the corner, trying to cure cancer or other serious diseases via genetics is still so far off in terms of what we understand about how genes "work," that it is wasted effort.

A Malignant Flame: The Relationship Between Cancer and Chronic Inflammation

Newsflash 2007: Admitting the "Genetic Basis of Cancer" is WRONG!

Chronic inflammation, which contributes to heart disease, may be a key to unlocking the mysteries of cancer. *Scientific American's* feature article delivered a shocker in the July 2007 issue, pages 60-67.[5] If you read the entire article you will be appalled at the lack of insight into cancer's *prime* cause as proven by Dr. Warburg decades ago. Noticeably lacking was any reference to Warburg or his insight into inflammation as a secondary cause of cancer.

5 Article references: "Smoldering and Polarized Inflammation in the Initiation and Promotion of Malignant Disease, Balkwill, F., et al., *Cancer Cell*, Vol. 7, No. 3, pages 211-217, March 2005; "Distinct Role of Macrophages in Different Tumor Microenvironments," Lewis, C. and Pollard, J., *Cancer Research*, Vol. 66, No. 2, pages 605-612; January 15,2006; "Paradoxical Roles of the Immune System during Cancer Develpopment," Visser, K., et al., *Nature Reviews Cancer*, Vol. 6, No.1, pages 24-37; January 2006.

The article admits that cancer researchers "have changed focus." Cancer researcher Robert Weinberg of MIT states:

> "The connection between **inflammation and cancer** ***has moved to center stage*** in the research arena." The article continues…
>
> "But biologists and immunologists have *begun to realize that progression from diseased tissue to full-blown invasive cancer often requires cells that* ***normally participate in healing cuts and scrapes*** **to be diverted** to the environs of the premalignant tumor….
>
> "…and **inflammation is the fuel** that feeds it [the malignant cancer]
>
> "In this **rewriting of the textbook** …
>
> "**This new view** implies that **rooting out every last cancer cell in the body might not be necessary**. **Anti-inflammatory cancer therapy** instead would prevent premalignant cells from turning fully cancerous or would **impede an existing tumor from spreading** to distant sites in the body. **Cancer victims might then be able to survive**." (Emphasis added.)

Newsflash 2008: Case Closed, Closed, Closed…IT is NOT Genetic

The Special Edition of *Scientific American* (Vol. 18, No. 3, August/September 2008) devoted the entire issue to cancer. Many of the articles repeated the previous nonsense we hear time and time again that leads nowhere. However, the article "Untangling the Roots of Cancer," by W. Wayt Gibbs, was excellent in presenting the truth, starting with the failure of the "oncogene theory."

- "**But the oncogene/tumor suppressor gene hypothesis has also failed, despite three decades of effort**, to identify a particular set of gene mutations that occurs in every instance of any of the most common and deadly kinds of human cancer."

The article then details how geneticist Lawrence A. Loeb **led cancer researchers astray with the silly notion that your cells are capable of having 10,000-100,000 mutations** each.

- "For many years, **he suggested** that 'early during the genesis of cancer there are **enormous numbers of random mutations**—10,000-100,000 per cell,' but he had **little evidence to support the idea**." (Emphasis added.)

In 2006, researchers actually measured the number of mutations and it was a mere "**65-475 mutations *per 100 million* nucleotides**." [Note: This is .000475% – .000065%—next to nothing.]

◗ *Life-Systems* Engineering Science Commentary

The number of misleading researchers in the medical sciences never ceases to amaze me, nor how they completely throw all the researchers off track. This type of behavior simply doesn't occur in sciences like physics or engineering, where scientific standards are much higher. Witness the contrast in results — amazing advances in technology every few years. Contrast this with thirty (30) wasted years of cancer researchers looking in completely the wrong "genetic-based" direction for cancer's source and cure. Are we doomed to another 30 wasted years before researchers get it right and discover Dr. Warburg?

2009: Newsflash – M.I.T. reports How Genetics Fails Again and Again![6]

Again, the human genome mapping is shown to be next to worthless in its applications. When will they stop misleading you with misplaced hope? Here's what you need to know:

> "There is very little reason to be encouraged that prevention strategies can be revolutionized with what we've discovered so far [on the genetic basis of common diseases]."
>
> David Goldstein, Director,
> Center for Population Genomics and Pharmacogenetics
> Duke University, Durham, N.C.

6 "Interpreting the Genome," Emily Singer, *Technology Review*, January/February 2009, pages 48-53.

- "[T]he **actual impact on medicine,** however, is far less certain and **may be much less positive.**

- "…The **assumption** was that a limited number of common genetic variants would turn out to underlie a particular disease, and physicians would be able to prescribe drugs according to which variants their patient carried. **But the latest data suggest that even the most common heritable illnesses, such as diabetes and heart disease, are linked to many different variants, each of them relatively rare.** If that's true, then practicing **personalized medicine could become very complicated —** and very expensive. 'It would not be good to have a $5,000 genome and $500,000 analysis,' says Francis Collins, the former director of the National Human Genome Research Institute and a leader of the Human Genome Project.

- **"Single gene disorders,** however, make up a **very small percentage** of human diseases. **For most diseases, it's much harder to pinpoint the genetic culprits.**

  "…But finding these variations has **not led to the breakthrough** that some scientists had hoped for **in understanding the genetic basis of common diseases.** That's because they turn out to **account for only a small fraction of the genetic risk** for many illnesses.

- **"'There is *very little reason to be encouraged* that prevention strategies can be revolutionized with what we've discovered so far** [on the genetic basis of common diseases],' says David Goldstein, director of the Center for Population Genomics and Pharmacogenetics at Duke University, Durham, NC.

- "Even Watson **[co-discoverer of DNA structure]**, who has spent his career trying to understand DNA, **seems less than impressed** to see the results of his genome presented [at recent Cold Springs Harbor conference]. **'We'll see if any of it adds five minutes to my life span.'**

- "But the greatest challenge in the next phase of the human genome is likely to be **interpreting the meaning of the seemingly endless array of variations that will be uncovered.** [I]t's often impossible to tell which class a variation falls into just by looking at it.

- "The complexities of the **new genome information may also be an obstacle to the personalized medicine that gene sequencing was supposed to usher in.** But genetic tests that detect newly discovered **variations won't be very useful until scientists can figure out what those variations mean.**

- "Some scientists think that the real value of genomics may **not lie in personalized medicine at all.**

- "[T]he **easier it gets to sequence a genome, the harder it becomes to make sense of the complexity the sequences reveal.** As Collins puts it, 'The Human Genome Project was perhaps a simple undertaking compared to what we face next.'" [Emphasis added.]

1. One Renegade Cell: How Cancer Begins, by Robert A. Weinberg, Ph.D. (Basic Books, 1998)

This book is a guide to the history of cancer research throughout the past four decades. Robert A. Weinberg presents an excellent summary, much of it quite technical, of the past few decades of "advancement" in the fight against cancer. The author is a professor of biology at M.I.T. and former director of the Oncology Research Laboratory at the Whitehead Institute in Cambridge, Massachusetts.

The problem with modern cancer researchers' utter failure to find the prime cause of cancer or a valid means of prevention of either the initial inception of the disease or a recurrence after remission has been their gradual shift from concentration on practical research to exploring academic and theoretical questions. Many of today's cancer researchers seem to live in a dream world where pet theories may be explored for years without leading to any real solutions to disease. Regarding the huge effort to explain cancer with genetics, Dr. Robert A. Weinberg of M.I.T. said,

> "…**Something was very wrong. The notion that a cancer developed through the successive activation of a series of oncogenes [cancer-causing genes] had lost its link to reality**."[7]

Dr. Weinberg exposes and details failure after failure of cancer researchers to find cancer's cause or cure, and the book verifies much of the

7 *One Renegade Cell: How Cancer Begins,* by Robert A. Weinberg, Ph.D. (New York: Basic Books, 1998), pp. 67, 90, 95, 153.

information presented in this book. More to the point, Dr. Weinberg states on page 67 that cancer-**causing "genes" are recessive—not dominant as everyone assumed!** On page 90, he reveals that "[F]ewer than one DNA base in a million appears to have been miscopied." Thus, the prime cause of cancer is *not* a genetic mutation. On page 95, Dr. Weinberg shares his opinion that the genetic discoveries made thus far are "sterile"—the prime cause of cancer is not "genetic."

Scientific Breakthroughs and Publications Supporting Dr. Warburg's Conclusions

Because we can't overemphasize the fact—controversial though it may be—that there is *no evidence that cancer has a genetic causation,* we will begin with a state-of-the-art verification, by a top MIT cancer scientist, of Dr. Warburg's amazing 1956 public statement of this fact.

One Renegade Cell: How Cancer Begins, by Robert A. Weinberg, Ph.D. (Basic Books, 1998)

The book, *One Renegade Cell: How Cancer Begins,* by Robert A. Weinberg, Ph.D. (Basic Books, 1998), ***makes clear that there is no genetic causation for cancer***. The author is a professor of biology at M.I.T. and former director of the Oncology Research Laboratory at the Whitehead Institute in Cambridge, Massachusetts. On page 67, the book states that **cancer-causing "genes" are recessive—not dominant as everyone assumed!** Cancer is extremely difficult to grow in the body. On page 90, Dr. Weinberg states, **"[F]ewer than one DNA base in a million appears to have been miscopied.**" Although we have trillions of cells, the amount of "defects" per DNA grouping is **insufficient to cause cancer**. What this means is that the prime cause of cancer is not a mutation. On page 95, the author states that the genetic discoveries made are "sterile." As Dr. Warburg made clear years ago, Weinberg confirms that the prime cause of cancer is not "genetic." On page 153, the book says we "[m]ust **address these ultimate roots of cancer before we make substantial reductions in cancer incidence**." Few have listened, though Weinberg clearly made the point that all the modern cancer research roads over the past 30 years have led nowhere. Warburg made clear what the root of cancer is and *The Hidden Story of Cancer* taps that discovery to the fullest.

On page 233 of his book *Racing to The Beginning of The Road: The Search For The Origin Of Cancer*, also by Dr. Weinberg (Harmony Books, New York, NY, 1996), a remarkable finding is presented that demolishes the basis for most researchers' search for the "cancer gene": All of the cancer researchers found that the "cancer gene" was dominant. However, an amazing **professor at Oxford proved them all wrong** and **shook the cancer research community to its core**. Professor Henry Harris took normal mouse tissue cells and fused three types of cancer cells to them. Surely, the cancer cells would take over the normal cells and "convert" them into cancer. **This didn't happen to these hybrid cells**. **The cells grew normally.** Dr. Warburg had already showed cancer development requires a significant amount of time—years. Did this amazing experimental result stop the cancer researchers from continuing down the wrong path? No.

In *One Renegade Cell: How Cancer Begins,* (Basic Books, New York, NY, 1998), Robert A. Weinberg presents an excellent summary, much of it quite technical, of the past few decades of "advancement" in the fight against cancer. On page 64 of his book he tells how the bubble burst with the "mutant oncogene" theory:

> "But very few [tumors] carried even two oncogenes simultaneously [lots of these [oncogenes] were required simultaneously for cancer to develop]. Something was very wrong. The notion that cancer developed through the successive activation of a series of oncogenes *had lost its link to reality*."

Here, we see failure of the "genetic causality" theory of cancer. It's all here—**the complete failure of modern cancer researchers to find any cause *based in reality*—**and this is stated by a top cancer researcher at MIT!

2. It's <u>NOT</u> Viral

In his 1996 book, *Racing to the Beginning of the Road: The Search for the Origin of Cancer,* Robert Weinberg, Ph.D., summarized the complete failure of researchers to find any viral cause for cancer:

> "…But there were **no printed retractions** in the scientific literature to set the record straight [about the failure to find a viral cause of cancer]. Just silence … So the hoped-for human retrovirus slipped quietly away into the night. The **hundreds of millions of dollars spent** between 1965 and 1978 by the Special Virus Cancer Program **could not make it happen**."

Even 10 years later after this fact was published, the cancer community still doesn't fully understand that retroviruses don't cause cancer as evidenced by the following top-ranking research institution's mistake. Cancer researchers still often incorrectly parrot that retroviruses do cause cancer; in particular, leukemia. "Shape of a Protein That Helps Retroviruses Break into Cells—Weizmann Institute,"[8] stated "**Retroviruses** are among the trickier and more malicious disease agents, **causing** AIDS and **cancers such as leukemia**." Dr. Weinberg's information isn't understood by enough of the cancer researchers.

The two history-making companies that mapped the genomes in 2001 had the following to say about cancer, in the article, "Analysis Shows: It's **Proteins, *Not Genes*, That Count"**—Reuters Science News, February 11, 2001:

1. "Both teams agree: it is proteins that matter—much **more than genes**."

2. "Genes don't determine whether you get colon cancer…"

3. "Those who are looking for forgiveness of responsibility for their own lives in the genetic code will be very disappointed."

There you have it, published in 2001, that *genes don't determine* whether you get cancer. Genetics cannot explain cancer's prolific (enormous) increase in less than 80 years—our genes haven't changed in the last 100 years.

Many Scientists Debunk the Genetics Hype

Any competent molecular biologist will tell you that cancer (and heart disease, and diabetes, etc.) are **not** genetically based. But today, a genetic basis for cancer is still widely sought in the medical community—and the research is promoted to the public as though it is going to produce results in the very near future.

Because of the overwhelming publicity that has been given to the genetic search for a cure, time will be spent showing you why the genetics line of research to prevent or cure cancer is incorrect. Dr. Warburg (the top biochemist of the 20th Century) himself cautioned other scientists, many times, against pursuing this direction of research. Many other brilliant

8 "Shape of a Protein That Helps Retroviruses Break into Cells," Weizmann Institute, April 14, 2005, *Medical News Today*, Ref.: http:// www.medicalnewstoday.com/printerfriendlynews.php?newsid=22781, by Alex Smith, Weizmann Institute, Israel.

people in the field have written books and articles exposing why time and energy spent working in this direction are not well spent. But the average person rarely sees this information.

I have selected six excellent articles addressing this question. Below are short quotes and descriptions of the important points from some of these articles.

3. "It's Not 'All In The Genes'" by Robert Sopolsky.

Robert Sopolsky, professor of biological sciences and neurology at Stanford University, wrote an insightful article that appeared in *Newsweek Magazine* on April 10, 2000, called "It's Not 'All In The Genes.'" Professor Sopolsky puts genes' role in the body into perspective, describing that the role of the genes is far more passive and minor than is usually implied. He makes the point that the genes and the environment interact, and the genes therefore should not be considered or studied apart from the environment.

Another important point Professor Sopolsky makes is something almost no one in the research community tells the public: **genes don't by themselves determine and control the functions of the body. They follow instructions that originate somewhere else.**

So, while genes may "create vulnerability" to disease, they don't make disease inevitable, because there are other things that affect the genes.

4. "Analysis Shows: It's Proteins, *Not Genes*, That Count," *Reuters Science News*, February 11, 2001

This article, written by members of the genome mapping project, contained these surprising comments:

"Genes don't determine whether you get colon cancer …"

"Those who are looking for forgiveness of responsibility for their own lives in the genetic code will be very disappointed."

Here, in print, the people **responsible for the genome mapping project** actually say that **cancer is not genetically caused**!

If this is the case, we have to ask why all the research is still focused in the wrong area!

5. "Science vs. The Human Genome Hype" by Colin Lowry

The extraordinary magazine, *21st Century*, Summer 2000, published an editorial titled "Science vs. The Human Genome Hype," by Colin Lowry. Here are some of its surprising high points:

- "The Human Genome Project is not a scientific breakthrough at all. **Lost in all the hype is the reality that we don't know what 97% of the DNA already sequenced means.** A breakthrough in science signifies that a new principle has been discovered that changes our previous assumptions. The sequencing of the DNA of the genomes has been going on for decades, yet **no new principle about living systems has been learned from it** alone."

- "Although it will be useful to have a two-dimensional map of the sequence of the genome, **it doesn't tell us anything about the function of any of the genes**."

- "…. **None of the gene's activity or three-dimensional structure can be known from the linear sequence [which is how the genome project's genome sequencing maps show genes]**…. Looking at the DNA in a linear way, scientists assumed that the regulatory region of the DNA for the hemoglobin family would be in close proximity to the gene sequences, but it was not found there."

- "**The sad part** of the genome issue is that all of the attention and funding of **the human genome project has detracted from the very research which would give us the kind of breakthroughs that may make the DNA sequence information useful**…."

- "… It may **play well on Wall Street or the NAS-DAQ marketplace, where the much overvalued speculative bubble thrives on such hype.** But **are any scientists in the field fooling themselves** into thinking that this type of "speculative" [guesswork] research will lead to a breakthrough, which even if found, will ever be used for the benefit of the health of the public?"

There is terrific insight here: The genome project is really no breakthrough at all; no new principles are learned from it. Genes are three-dimensional, but they are being mapped in only two dimensions. Therefore, a huge amount of information is lost. We are wasting precious time because cures

for cancer and other diseases are being pursued in the wrong area. Hyping by Wall Street misleads the public.

6. "Riding the DNA Railroad" by Eric Lander

In an excellent article from *Technology Review* (M.I.T.), July/August 2000, Professor Eric Lander, director of the Whitehead Institute for Biomedical Research/MIT Center for Genome Research, made several extremely telling statements about the genome project and gene-related research. He stated that, in effect, gene researchers "don't know how to read" the genome program! He also clearly states that gene mapping (sequencing) is trivial and requires no inventive step. The mapping doesn't tell you what a specific gene does.

- *Q: "What are the next big opportunities in genomics?"*
  Lander: "…The genome is a very elaborate program and **we don't know how to read it."**

- *Q: "What is your view of gene-related patents?"*
  Lander: "… For the last three years the Patent Office was saying that naked gene sequence about which you know nothing, or very little, is patentable. **When something is trivial and involves no substantial inventive step, like running a gene sequencer,** it's my sense that society shouldn't be setting the bar so low. In fact, **the difficult step is figuring out what a gene does and what it's good for."**

Therefore, we maintain that in and of itself, gene sequencing is of very little value, and will lead nowhere.

7. *Exploding the Gene Myth: How Genetic Information is Produced and Manipulated by Scientists, Physicians, Employers, Insurance Companies, Educators, and Law Enforcers*, by Ruth Hubbard and Elijah Wald

In their ground-breaking book, *Exploding the Gene Myth (How Genetic Information is Produced and Manipulated by Scientists, Physicians, Employers, Insurance Companies, Educators, and Law Enforcers)*, published in 1993, Ruth Hubbard, professor of biology emerita at Harvard University, and Elijah Wald demonstrate the futility and misuse of time and resources entailed in chasing after the gene to explain, cure or prevent diseases.

- "The **myth of the all-powerful gene is based on flawed science** that discounts the environmental context in which we and our genes exist."

- "The language that geneticists use often carries considerable ideological baggage. Molecular biologists, as well as the press, use verbs like 'control,' 'program,' or 'determine' when speaking about what genes or DNA do. These are all inappropriate because they assign far too active a role to DNA. The fact is that **DNA doesn't 'do' anything**; it is a remarkably inert molecule. It just sits in our cells and waits for other molecules to interact with it."

- **"Relatively few diseases or disabilities are genetic**; even fewer can be predicted, and **most of the risks we and our family encounter are not biological at all**."

- "….**When scientists talk about genes 'for' this or that molecule, trait, or disease they are being fanciful.** At present [1993] there is little by way of theory by which they [biologists] could predict how, or whether, a certain mutation in a gene will affect a cell or organism."

In the above excerpts, Professor Hubbard makes it clear that DNA doesn't directly "do" anything. She tells us how relatively few diseases are genetically-based, and that we can predict very little of how genetic mutations will impact cells and organisms.

- "They [biotechnology firms] are producing a host of tests and medications…. **The evidence to support such promises is often slight or even nonexistent**, but since most of the medical and scientific experts in the field are also connected with the industry they are inclined to be optimistic."

- "….**most traits do not follow the [simple] pattern of inheritance described by Mendel…** No matter how one may look at DNA, there are no discrete little balls that carry hereditary traits…. even the simplest traits involve not only a variety of proteins, but also other factors, both within and outside the organism. **It is an oversimplification to say that any gene is 'the gene for' a trait."**

- "Like many chronic health conditions, high blood pressure and related disorders often cluster in families. **Most physicians therefore assume that 'genetic factors are involved'…."**

Professor Hubbard here tells us that the biotech industry often gives us promises based on little or no evidence. She tells us that it is not possible

to exactly predict a certain trait or result simply based on the presence of a particular gene, because there are many more factors at work affecting the genes, both inside and outside the organism. Physicians mistakenly assume genetic factors are the cause of most diseases. Don't believe it!

In another excerpt (see Appendix III), Dr. Hubbard disproves the genetic basis of a particular cancer by pointing out that most people who get this cancer *don't* have the gene, and many people don't get this cancer who *do* have the gene. **Genetics cannot be the cause of the cancer if many people with the supposed mutated gene do not develop that cancer.** A true cause requires virtually all (95%) of cases to stem from it.

She also brings to light the fact that most women who develop breast cancer have "no apparent risk factors." The obvious deduction is that no one is telling you what the *correct* risk factors are, because they don't know what they are. Professor Hubbard makes her request of biochemists quite clear: they need to "learn a good deal more."

8. *It Ain't Necessarily So: The Dream of the Human Genome and Other Illusions,* by Richard Lewontin

For the final word on the *failure of a genetic solution to cancer,* you ought to read, *It Ain't Necessarily So: The Dream of the Human Genome and Other Illusions*, by Richard Lewontin, published by New York Review Books in 2000. Professor Lewontin, a professor at Harvard University, was described by the eminent evolutionary biologist, Stephen Jay Gould, as "the smartest man I have ever met." In his book, Professor Lewontin shows how many oft-repeated, supposed facts about cancer are either unproved or untrue.

Several of his on-the-money observations appear below. For an even fuller appreciation of his insight, you can read additional important excerpts from his book in Appendix III.

- [speaking about cancer] **"… In no sense of simple causation are mutations in these genes *the* cause of cancer**, although they may be one of the predisposing conditions. **Even diabetes, which has long been known to run in families, has never been tied to genes** and there is no better evidence for a genetic predisposition to it in 1992 than there was in 1952 when serious genetic studies began. [Yet] **no week passes without an announcement in the press of a 'possible' genetic cause of some human ill** [which] **upon investigation 'may eventually lead to a cure.'"**

- **"In one notorious case, a claimed gene for manic depression**, for which there was a strong statistical evidence, **was nowhere to be found** when two members of the same family group developed symptoms."

- "It is simply impossible to justify the expenditure of a trillion dollars on a project to put in sequence the complex DNA of a 'typical' human being or corn plant on the grounds that it would be a lovely thing to behold. **So we are assured that it is really all in the interest of curing cancer, relieving schizophrenia, and making groceries cheaper….** [it] **has become a piece of direct-mail advertising."**

Professor Lewontin here tells us the reason for all the made-up hype of genes in relation to curing cancer and other diseases: it's an empty justification for the genome mapping project. This project is a hugely expensive "intellectual" exercise that requires a made-up justification.

Finally, Professor Lewontin points out the most fundamental reason that the genome mapping project may never lead to the discovery of the causes of major or minor illnesses. This is the major flaw underlying the project that its advocates have not seen fit to mention publicly:

- "…there is **no single, standard, 'normal,' DNA sequence that we all share,** [therefore,] observed [gene] **sequence differences between sick and well people cannot, in themselves, reveal the genetic cause of a disorder….** [But] the failure to turn knowledge into therapeutic power does not discourage the advocates of the Human Genome Project."

Professor Lewontin tells us that, in spite of the hype surrounding the mapping project, the fact that there is actually no single, standard DNA sequence that all humans share—no standard pattern—means there is no point in tracking the DNA sequence differences between sick and well people—because there is no standard pattern to compare those differences to! So **tracking these gene sequences can't reveal the genetic causes of disorders!**

Completion of the Human Genome Mapping Project

On April 15, 2003, The *New York Times* reported on the completion of the Human Genome Mapping Project in a story in Section D1 titled "Once

Again, Scientists Say Human Genome Is Complete," by Nicholas Wade. The director of the genome center at the National Institutes of Health, Dr. Francis Collins, said the Human Genome Project had completed its task.

Here are some of the things this article reported about the project, followed by my comments.

1. "…The genes and other important elements of the genome are now almost all in their correct position, a vital requirement for researchers seeking to locate a gene that contributes to disease."

This is highly misleading. Remember that Dr. Lewontin wrote that **tracking these gene sequences can't reveal the genetic causes of disorders.**

2. "… The tip and center DNA … is so hard to determine that the consortium's leaders said from the outset they would not try to do so… Foreseeing such difficult regions, the consortium said it would accept some gaps in the eventual sequence, provided their length was known."

As Colin Lowry reported earlier in this chapter, "…we don't know what 97% of the DNA already sequenced means…" He also pointed out that the two-dimensional linear sequence does not give us any information about how the genes function in real life. If, on top of all that, the project is missing information, how accurate or useful can the project actually be?

3. "… If you are looking for a disease gene you can be confident that it exists in one continuous stretch of highly accurate sequence."

This is misleading. Professor Lewontin tells us that **knowing the gene is meaningless without a detailed knowledge of the body's specific biochemical actions (the "metabolic pathway")**.

4. "… In Chromosome 7, the individual being sequenced possesses a gene not found in other people," Dr. Wilson said.

Professor Hubbard would laugh at this. With questionable "gene inserts" such as this, the mapping makes a mockery of the notion that one can construct a meaningful prototype (standard model) for the human genome.

5. "… Next comes the task like discovering the variations in DNA sequence that contribute to disease in different populations, defining

> the proteins produced by each gene, and understanding how the proteins in each cell interact in a circuitry that controls the operation of the genome."

This summary at the end of the article contains the most insight and truth about the project, because basically it says that we don't understand what it all means. Three billion dollars spent mapping these genes—yet what did it accomplish? While scientific knowledge is valuable in itself, it has been highly misleading for those connected with the Genome Project to in any way imply that the knowledge gained from mapping the genes will rapidly open the door to understanding the causes of diseases like cancer.

Does Cancer Run in Families?

If you have been worried because cancer "runs in your family," you should by now realize that, to the contrary, disease only rarely has a proven genetic cause. Many other factors contribute toward the development of cancer, so you should not automatically make this assumption. **Cancer *doesn't* have to be in your future. There is something *proactive* that you can do. Following the methods in *The Scientific Cause and Prevention of Cancer* can protect you.**

We therefore suggest that you take all the "genetics causes all diseases" and "genetics will cure all diseases" hype with a *big* grain of salt.