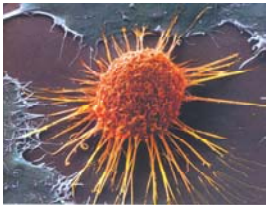




## About ThyoGen Pharmaceuticals

Untamed Cancer Cell

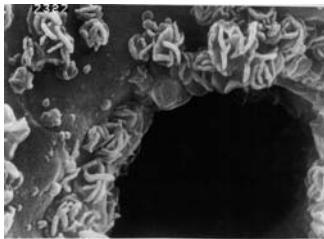
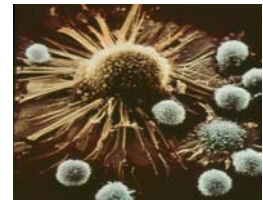


Pharmaceutical Glutathione

Pharmaceutical  
Redox Control Proteins

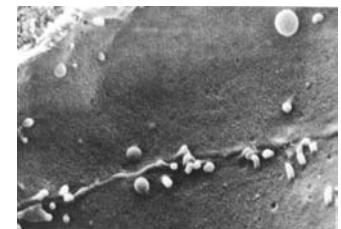


Cancer Cell About to Die



Pharmaceutical Glutathione

Pharmaceutical  
Redox Control Proteins



Top: Adhering Platelets in  
Microcirculation of Ischemic  
Cerebral Territory at 1.5 hours

Bottom: Occluded Microvessel  
in Ischemic Cerebral Territory  
at 3.0 hours.

Top: Clear Microvessel

Bottom: Higher Magnification

ThyoGen and its allies (*individuals and corporations*), have pooled decades of research, manufacturing capabilities, and clinical experience for the development of “smart” drugs that turn off only the specific disease mechanisms, and leave the normal processes alone. **The Company and its allies have chosen molecules that are present normally in the human body and are known to have chemical properties and functions that work to keep our cells and tissues normal.**

The absence of illness, and the presence of good health do not “...just happen...” They are the result of the non stop actions of many protective molecules and processes which humans and other life have developed over the Eons. It is some of these protective molecules and processes that we have borrowed and replicated as our pharmaceuticals, for example, glutathione and related redox proteomics.

As long as: (i) the fine intimate structures of these molecules are kept exactly identical to the normal, active molecules in the body, and (ii) their biochemical properties are known to us and other medical scientists, we know that our biological pharmaceuticals will be safe and effective.

We endeavor to just put back these molecules, glutathione and redox proteins which may be lost or damaged by disease processes. Of greatest interest, perhaps, is the finding of “...commonality...”, *at the molecular level*, of a number of diseases. Although our clinical targets are different, the molecular disturbances and losses of the pro-active defensive molecules are similar.

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*Some personal notes about the CEO. Born and educated in New York City, a scholastic leader in College and Medical School. Trained in Pathology and Molecular Pathology at the New York University Medical Center and the National Institutes of Health, Bethesda, MD, Laboratory of Experimental Pathology. Academic, full time at the University of Southern California and NYU Medical Center. Discovered free radicals in diseases and ameliorative bio-pharmaceuticals. Counseled by Dr. Gerhard Herzberg, the Canadian Nobel Laureate in Chemistry. Helped, together with others, to found the \$1.6 billion Doris Duke Charitable Foundation, [www.ddcf.org](http://www.ddcf.org), and serves as a Trustee. Selected by the Leadership of the U.S. Congress as Physician of the Year and later, Businessman of the Year, in 2003 for strategic plans.*

## ThyoGen's Pharmaceutical Development Strategies

Cancer, Diabetes, Cardio-Vascular Disorders, and Viral Infections have pathologic processes, *listed below*, in common. In laboratory investigations and earlier studies they were shown to be responsive to ThyoGen's group of pharmaceuticals. ThyoGen's oral, pharmaceutical glutathione ("Rx GSH") is an Investigational New Drug in FDA-cleared Clinical Trials, and has been reviewed as safe, well absorbed with brisk intra-cellular distribution in HIV-positive people, with clearances for Intermediate and Advanced Trials. The pathologic processes are:

- Production of excessive free radicals. These are molecules missing an electron. They were discovered in the Aurora Borealis (*top photo of cover page*) by the Canadian Nobel Prize winner, Dr. Gerhard Herzberg. He counseled Dr. Harry Demopoulos who discovered free radicals in cancers and stroke-damaged tissues in 1965 and 1972.
- Free radical processes have been documented in a number of diseases over the past few decades. They cause structural damage to cells, destroy controller molecules, and disrupt the cell's internal Reduction Oxidation environment which governs the physiology and molecular structure of cells.
- Free radical processes, and their adverse consequences suppress the Immune System's "T helper-1 response patterns" (*Th-1*). With deficient Th-1 responses, Cancer Cells and Infectious Microbes proliferate freely.

Pharmaceutical Development Strategies, as in FDA IND 45012 vs. HIV/AIDS, and FDA IND 60313 vs. Macular Degeneration, are structured to correct the above. These strategies have been successfully co-developed by ThyoGen, and its allies:

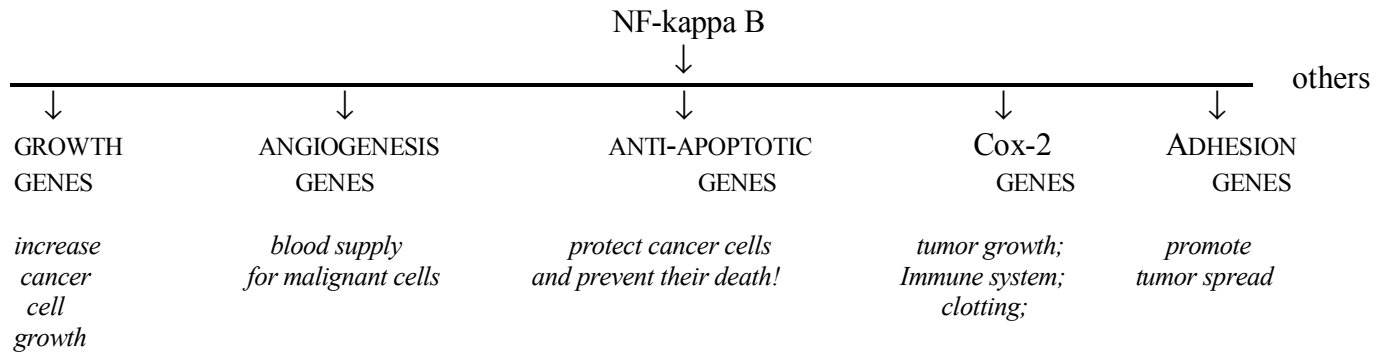
1. Antioxidant Pharmaceuticals Corporation (APC), New York. Patented the manufacture of the final dosage forms of one of the cell's major controls over free radicals, glutathione. Licensed to ThyoGen Pharmaceuticals;
2. Kyowa Hakko Kogyo, Ltd., Co., of Tokyo (KHK). Patented the large-volume production of crystalline-pure, bulk glutathione; Drug Master Files (DMF's) are registered with the FDA;
3. Arne Holmgren, M.D., Ph.D. Professor, Medical Nobel Institute Department of Biochemistry and Biophysics, Karolinska Institutet, Stockholm. Discovered, tested, and perfected the syntheses of clinical batches of Redox control proteins;
4. Luc Montagnier, M.D., co-discoverer of the AIDS viruses, is the chief strategist of "the Montagnier Protocols" in Virology, Oncology, and Diabetes
5. Nicholas Zervas, M.D., Distinguished Higgins Professor of Neurosurgery, Harvard, Massachusetts General Hospital, Boston. Pioneer of the strategies for treating sudden blockages of cerebral arteries (*acute ischemic strokes*). These carry over to narrowings and blockages of the coronary arteries.

**OUR PRIMARY FOCUS NOW**  
Cancer and Diabetes

## Molecular Mechanisms of ThyoGen's Drugs

- ThyoGen's Pharmaceutical glutathione (**Rx GSH**) and Dr. Holmgren's Pharmaceutical Redox Proteins (**Rx Redox Pr**) do the following:
  1. Neuter pathologic free radicals:
    - (i) Reactive Oxygen Species (ROS)
    - (ii) Reactive Nitrogen Species (RNS)
    - (iii) Reactive Quinoid Species (RQS)
    - (iv) Lipid Peroxides (LOOH's)
  2. Correct and maintain the internal Redox environment of cells to normalize disrupted signals and aberrantly activated genes.
  3. Stimulate the patient's T helper-1 responses to help eradicate Cancer Cells and Infectious Microbes.
  
- One of the Targets of ThyoGen's Strategies is overly activated Nuclear Factor kappa B. It is activated by free radicals and Redox changes. The other goal is restoring the deficient T helper 1 responses of the Immune system in Cancer and Diabetes.
  
- ◇ **Nuclear Factor kappa B is Overly Activated** by free radicals and by a shift downward in the Redox "setting" as glutathione is consumed. A network of 144 Genes is then "turned on", excessively producing additional Disease-Progression Molecules:
  1. Abnormal growth factors literally "push" cells to divide;
  2. Pro-inflammatory molecules are generated;
  3. Chemokines "call up" more inflammatory cells;
  4. Adhesion molecules are formed on platelets, white blood cells, and blood vessel linings;
  5. COX-2 which produces still more toxic molecules is overly expressed;
  6. Secreted Matrix Metalloproteinases destroy surrounding normal tissues; (*see Cover Page, left side "Untamed Cancer Cell"; there is a clear area around this Cancer Cell*);
  7. Proteins are formed that protect cancer cells and recently proliferated cells in Diabetic arterial walls from dying;
  8. others.

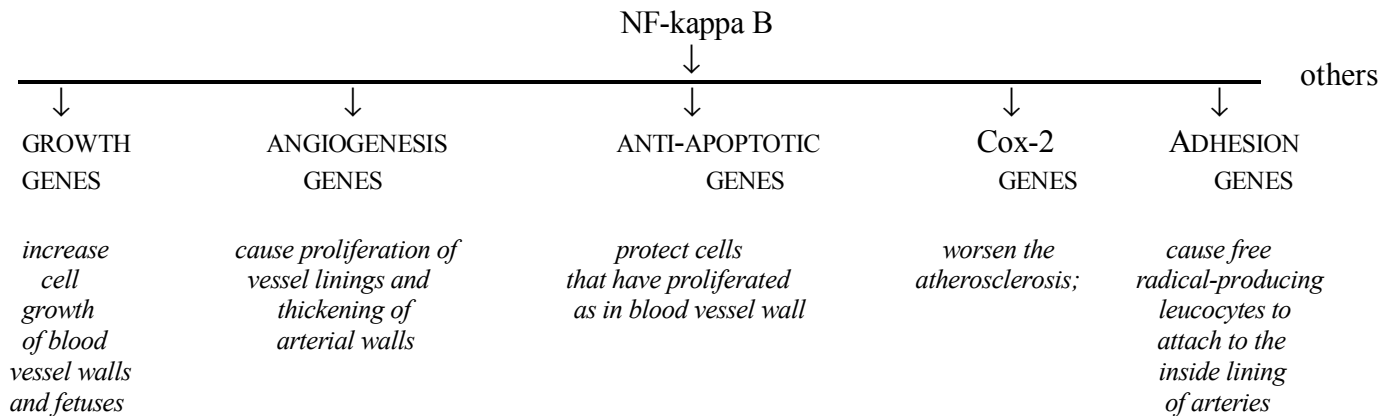
The following depicts the specific consequences of **overly** activated NF-kappa B in **Cancer**:



*Glutathione and Selected Redox proteins can, separately, safely suppress overly activated NF-kappa B and its overly expressed gene network in Cancer.*

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The following depicts the specific consequences of **overly** activated NF-kappa B in **Diabetes**:



*Glutathione and Selected Redox proteins can, separately, safely suppress overly activated NF-kappa B and its overly expressed gene network in Diabetes.*

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- ◇ **T Helper 1 Response Patterns are restored by replenishing glutathione and providing the appropriate Redox proteins**

**When NF-kappa B is activated and Th-1 responses are deficient, cancers** grow, and invade; diabetic **arteries** rapidly become blocked as their walls grow thicker and their linings become “landing pads” for platelets and white blood cells. The Scanning Electron micrographs on the cover demonstrate:

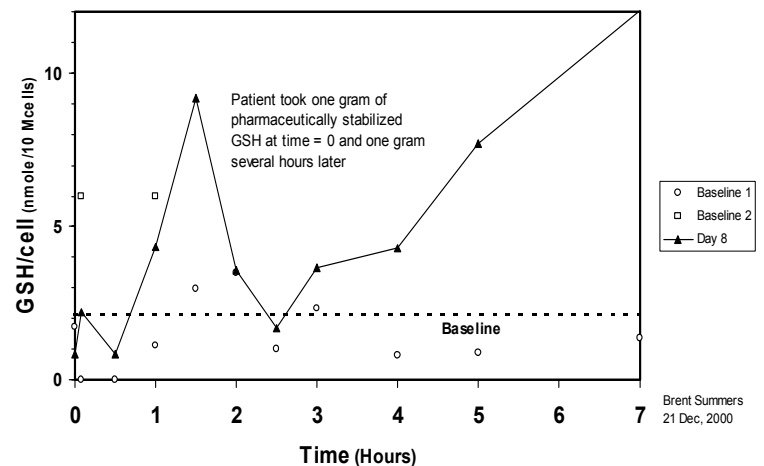
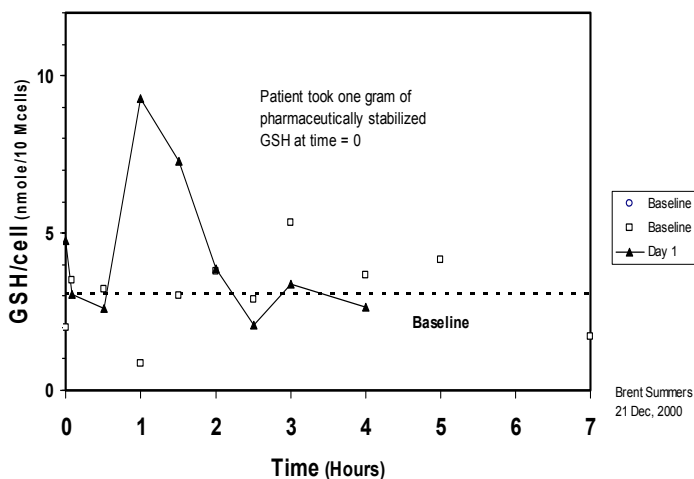
1. An Untamed Cancer Cell, with fully active NF-kappa B, and no Immune System Cells since Cancer Patients are in a T helper 2 response mode with “blinded Immune Systems, and a Cancer Cell with suppressed NF-kappa B and responding Immune Cells.
2. The insides of blood vessels that develop the basic vasculopathies of Diabetes when glutathione levels are low, and when they are sufficient.

The Company's biopharmaceuticals, Glutathione (**Rx GSH**), and Redox Control Proteins (**Rx Redox Pr**), have two important properties:

- i. They suppress NF-kappa B by neutering the excess free radicals and by maintaining the normal Redox "setting". **Nuclear Factor kappa B is recognized as one of the best targets in our clinical areas.**
- ii. The Company's drugs stimulate "T-helper 1 responses". These responses are the norm and routinely eradicate cancers, and microbes if sufficient glutathione and its supporting redox proteins are adequately represented. *The two color scanning electron micrographs on the cover page show the difference that T-helper 1 responses make. The Cancer Cell on the right is under attack by ten white blood cells in a Th-1 response. Stimulating the Th-1 responses is at the center of new drugs to overcome malignancies, serious infections, and weakened Immune Systems.*

### 1. Glutathione

The Company's lead drug, Rx GSH, has been cleared for intermediate and advanced clinical trials (HIV/AIDS, IND 45012 and Macular Degeneration IND 60313). We stabilized the glutathione molecule, neutered its troublesome charge, and made it highly bioavailable, orally and by other routes. The safety, stability, bioavailability, drug distribution into cells, and the manufacturing systems met FDA standards, proven in ThyoGen's clinical trial under its IND, #45012. **ThyoGen's globally patented methods are the proven way to safely and effectively use glutathione as a drug. Other preparations are inherently untested, unstable, and potentially dangerous.**



## **2. Redox Control Proteins**

Arne Holmgren, M.D., Ph.D., Professor, Medical Nobel Institute of Biochemistry and Biophysics, Karolinska Institutet, Stockholm, discovered and developed the glutaredoxins and thioredoxins that, together with glutathione, control the Redox “setting”. This governs whether NF kappa B will be activated, whether numerous enzymes, receptors, and genes will be “turned on” or “turned off”, and whether the response patterns of the Immune System will be balanced.

**Redox Proteomics** has emerged as the leading area within which major new pharmaceuticals and combination regimens can be rapidly developed in Clinical Trials.

**In many of these trials, ThyoGen has developed protocols to evaluate the present standard of care, compared to the present standard of care plus ThyoGen's drugs.**

### **OUR PRIMARY FOCUS, NOW**

- 1. Oncology:** Serous Carcinomas of Ovary and Aggressive Prostate Cancers will be treated with ThyoGen's Pharmaceuticals, *after comprehensive, standard care has been given*, to prevent the cancers from "coming back" Unmet needs in large markets. Time to NDA for marketing approval, 18 months.
- 2. Diabetes:** Aberrant redox proteomics and glutathione insufficiency have emerged as two correctible areas of biochemical pathology. ThyoGen will evaluate its drugs in: improving glycemic control, Safely; protecting the microvascular structures in the kidneys and retinae; reducing occlusive atherosclerotic events in heart, brain and lower extremities; and protecting beta cell mass, and function. Improving glycemic control and protecting renal function are the goals of two separate IND's, each one scheduled for 12-18 months.

### **OUR PIPELINE**

- 3. Acute Arterial Occlusions:** Treat acute ischemic strokes and acute, impending myocardial infarcts ("heart attacks") early, in ambulances and ER's to stem the shut-down of the microcirculation in the involved tissues and to keep the damaged arteries open. Time to NDA's, 24 months.
- 4. Virology:** Non-Symptomatic HIV. There are no drugs that can be used in this large market. The AIDS "cocktails" are too toxic for this early stage. Under the FDA's IND45012. Time to NDA, 12 months.

## ThyoGen's Business

This Summary of selected aspects of the Company is not an Investment Document. Matters discussed that are “forward-looking” are subject to certain risks and uncertainties that could cause actual results to differ materially from those discussed. A separate document, a Private Placement Offering Memorandum, is in effect and it is restricted to “Accredited Investors”, as defined in Regulation “D” under the Securities Act of 1933, as amended (“the Securities Act”).

**The drugs are necessary to safely help meet the needs of large medical markets. They do not duplicate other drugs, and are expected to work additively, or synergistically with treatments that represent the present standards of care.**

Specific documents and further details can be requested by qualified “Accredited Investors”.

Harry B. Demopoulos, M.D.