

TARGET MECHANISMS AND INTERVENTION STRATEGIES FOR CANCER PREVENTION AND TREATMENT

Introduction: In the following material, I describe 3 target mechanisms that are a focus of our Guided Self-Change Program. These targets and intervention strategies reflect specific methods of restoring balance to the expressive capacity of your DNA.

Intervention Strategies 1-7 are “healing tools” for cancer prevention and treatment. Healing is learning to restore harmony and balance between and within the 3 target mechanisms. Cells live as communities in the body – as organs or complex systems, such as the heart and the nervous system that animates it. Interwoven with the cell community is the extracellular matrix, composed of 3 major classes of biomolecules:

1. Structural proteins: collagen and elastin.
2. Specialized proteins: e.g. fibrillin, fibronectin, and laminin.
3. Proteoglycans: these are composed of a protein core to which is attached long chains of repeating disaccharide units termed glycosaminoglycans (GAGs) forming extremely complex high molecular weight components of the ECM.

GAGs are highly negatively charged molecules, with extended conformation that imparts high viscosity to the solution. GAGs are located primarily on the surface of cells or in the extracellular matrix (ECM). Along with the high viscosity of GAGs comes low compressibility, which makes these molecules ideal for a lubricating fluid in the joints. At the same time, their rigidity provides structural integrity to cells and provides passageways between cells, allowing for cell migration. The specific GAGs of physiological significance are hyaluronic acid, dermatan sulfate, chondroitin sulfate, heparin, heparan sulfate, and keratan sulfate. Although each of these GAGs has a predominant disaccharide Component, heterogeneity does exist in the sugars present in the make-up of any given class of GAG.

Hyaluronic is unique among the GAGs in that it does not contain any sulfate and is not found covalently attached to proteins as a proteoglycan. It is, however, a component of non-covalently formed complexes with proteoglycans in the ECM. Hyaluronic acid polymers are very large (with molecular weights of 100,000 - 10,000,000) and can displace a large volume of water. This property makes them excellent lubricators and shock absorbers.

Each cell is programmed to perform its work in the community so that the organ or system functions responsibly to sustain life. Cells speak to each other through chemical signals, respond to emotional signals, and produce energy and wastes, which are excreted from the body and/or stored in the cells. Thus healing is the process of removing wastes from the cells and from the body, while restoring balance within each category.

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TARGET MECHANISM 1: NORMAL FUNCTION

1. Signaling pathways for normal cell growth:

- a. Normal cells reproduce only when instructed to do so by other cells in their vicinity;
- b. Unceasing collaboration ensures that each tissue maintains a size and architecture appropriate to the body's needs.

2. The cell cycle clock: regulator of normal cell growth

- a. The life cycle is the intricate sequence of events by which a cell enlarges and divides, and is regulated by a collection of proteins located in the cell nucleus, known as "cell cycle clock proteins".
- b. Specific classes of genes regulate the activity and amounts of proteins, which make up the cell cycle clock.
- c. Certain genes, in their normal configuration, choreograph the life cycle of the cell.

TARGET MECHANISM 2: ABNORMAL FUNCTION

1. The origin of cancer cells

- a. Cells in a cancer descend from a common ancestral cell, through the accumulation of mutations in specific classes of the cell cycle clock regulating genes;
- b. Cancer cells violate collaboration, and become deaf to the usual controls on proliferation, following their own internal agenda for reproduction and for evading death.
- c. Cancer cells possess the ability to migrate from the site where they begin, invading nearby tissues and forming masses at distant sites in the body;
- d. Tumors become more aggressive over time, and become lethal when they disrupt the tissues and organs needed for the survival of the organism as a whole.

2. Specific gene classes play major roles in triggering cancer

- a. A gene specifies a sequence of amino acids that must be linked together to make a particular protein - the protein that carries out the work of the gene;
- b. When a gene is switched on, the cell responds by synthesizing the encoded protein;
- c. Mutations in a gene can perturb a cell by changing the amounts or activities of the protein product.

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TARGET MECHANISM 3: GROWTH REGULATORS

1. **Proto-oncogenes encourage growth,**
 - a. When mutated, proto-oncogenes can become carcinogenic oncogenes that drive excessive multiplication
 - b. Mutated proto-oncogenes yield too much of its encoded growth stimulatory protein
 - c. Mutated proto-oncogenes yield an overly active form of its encoded growth stimulatory protein

2. **Tumor suppressor genes inhibit growth**
 - a. Tumor suppressor genes contribute to cancer when they are inactivated by mutations;
 - b. Mutated tumor suppressor genes thus deprive the cell of crucial brakes that prevent inappropriate growth;
 - c. Six or more of the founding cell's growth controlling genes (proto-oncogenes/suppressor genes) must mutate in order for a cancerous tumor to develop.

3. **Other Altered Gene Classes**
 - a. Certain gene classes enable a proliferating cell to become invasive
 - b. Other gene classes enable a proliferating cell to metastasize
 - c. Proteins known as transcription factors respond to receptor mediated stimulation by activating a cohort of genes that help to usher the cell through its growth cycle

INTERVENTION STRATEGY 1

- ❖ **Biologic response modifiers** to modulate immune function; and autonomic re-education to restore normative controls on gene expression.

INTERVENTION STRATEGY 2

- ❖ Multi-dimensional **nutritional and detoxification therapies** to (1) restore normal cell signaling, (2) to block abnormal signaling, and (3) to restore autonomic balance.

INTERVENTION STRATEGY 3

- ❖ Herbal, nutraceutical, and pharmaceutical **medicines to restore normal cell cycle clock function.**



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INTERVENTION STRATEGY 4

- ❖ **Tumor burden reduction** through radiation therapy, surgery, and cell specific cancer therapy.
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INTERVENTION STRATEGY 5

- ❖ Toxic and non-toxic **chemotherapies** to aid in tumor burden reduction.

INTERVENTION STRATEGY 6

- ❖ Biologic and non-biologic **guided imagery, with** associated **breath work**, to restore cooperative relationships within specific cell communities.

INTERVENTION STRATEGY 7

- ❖ **Mind-body-spirit integration** as a method to improve present/future life planning **through** our personalized [Guided Self-Change Program](#)
- ❖ - a method for enhancing the possibility of a spontaneous remission or remarkable cancer recovery.