

How Poly-MVA Works

To understand "**How Poly-MVA Works**", you must first understand "**How Mitochondria Work**"

Mitochondria and Cancer

Molecular Cell

2016 Mar 3; 61(5): 667–676.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4779192/>

Mitochondrial Function and its impact in Cancer Cell Development

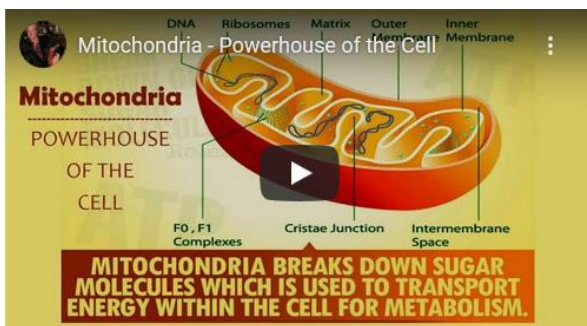
"Decades ago, (Nobel Prize Winning Scientist) Otto Warburg observed that *cancers ferment glucose* in the presence of oxygen, suggesting that **defects in mitochondrial respiration** may be the underlying **cause of cancer**. Mitochondria **supply energy**, provide **building blocks for new cells**, and **control redox homeostasis, oncogenic signaling, innate immunity** and **apoptosis** (programmed cell death). Thus, mitochondria play a **central and multi-functional role in malignant tumor progression**, and **targeting mitochondria provides therapeutic opportunities**."

Mitochondria's direct link to Disease & Cancer

These brief Videos will help the viewer to better understand the **direct and primary role** that **Mitochondrial Dysfunction** plays in the "**initiation and progression**" of **Cancer & Disease**

Click on Each Graphic below to watch Videos

"Damaged Mitochondria" linked to 100's of Diseases



Learn how "Mitochondrial Dysfunction" causes Cancer



SECTION #1

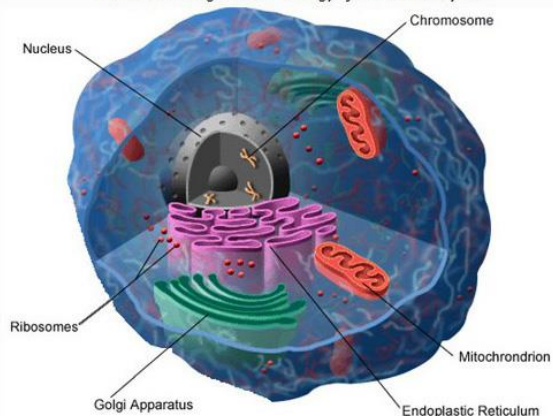
Mitochondrial Function Comparison Healthy Cell vs Cancer Cell

HEALTHY CELL

Aerobic "Normal Oxygen" Respiration

NORMAL MITOCHONDRIAL FUNCTION

* Mitochondria generate "energy" for the Healthy Cell



NORMOXIC STATE

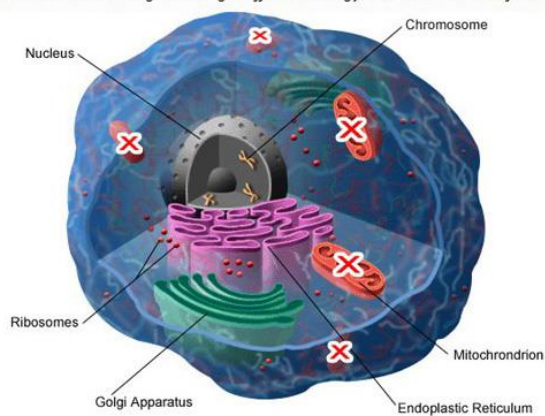
Normal "oxygen and energy (electron) production" within the Mitochondria allows cell to perform all of its cellular functions!

CANCER CELL

Anaerobic "Low Oxygen" Respiration

IMPAIRED MITOCHONDRIAL FUNCTION

* Mitochondria STOP generating "sufficient energy" to sustain normal function



HYPOXIC STATE

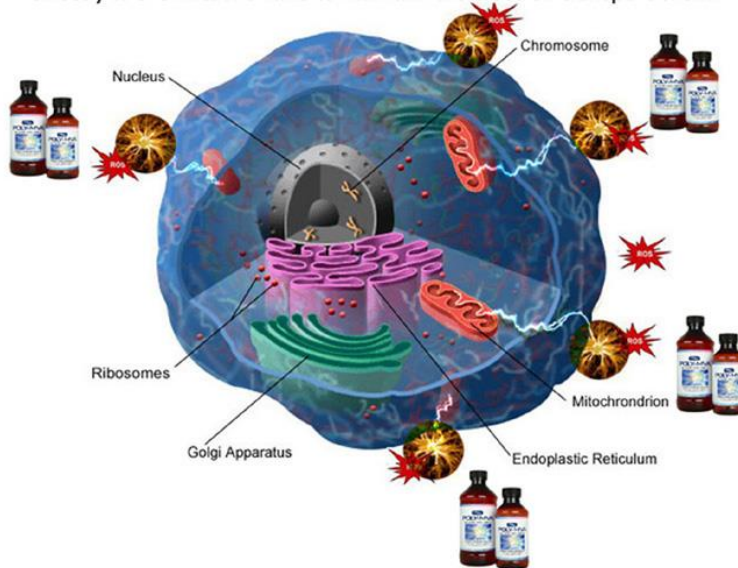
Dramatically reduced "oxygen and energy (electron) production" via the Mitochondria causes cell to switch over to **anaerobic metabolism**.

SECTION #2

Poly-MVA shuttles electrons directly to the Mitochondria Free Radical scavenger and Electron Donor



Poly-MVA scavenges ROS (free radicals) and then, delivers electrons directly to the mitochondria to maintain the electron transport chain.



SECTION #3

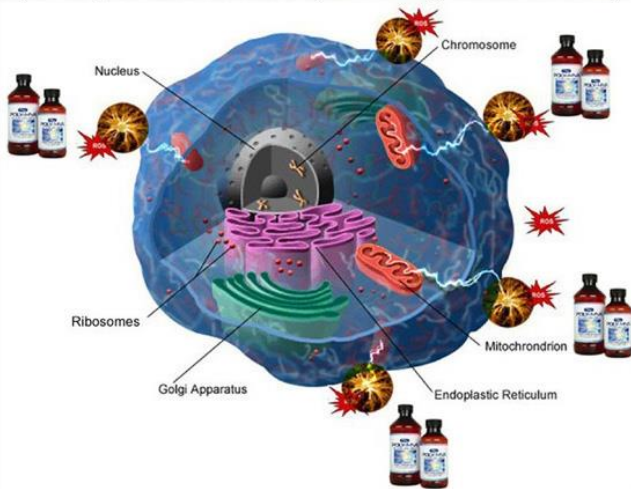
Poly-MVA Shuttles Electrons directly to the Mitochondria in both Cells

"Healthy Cells" receive benefit - "Cancer Cells" suffer damage

"positive impact" on a HEALTHY CELL
Aerobic "Normal Oxygen" Respiration

POLY MVA donates Electrons to **"normal"** Mitochondria

* Poly-MVA helps Mitochondria continue to generate "energy" to maintain a Healthy Cell



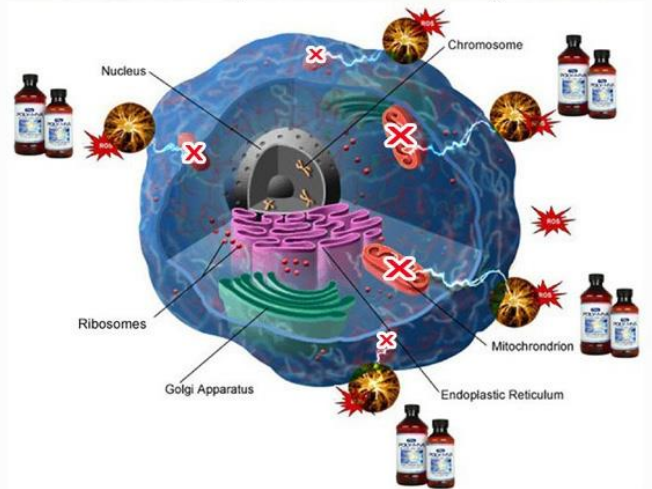
NORMOXIC STATE

Poly-MVA is able to **constantly re-supply the mitochondria with electrons** which allows the cell to **maintain "Optimal" Mitochondrial Function!**

"negative impact" on a CANCER CELL
Anaerobic "Low Oxygen" Respiration

POLY MVA donates Electrons to **"impaired"** Mitochondria

* Mitochondria can not accept "excess electrons" which damages mitochondria



HYPOXIC STATE

Mitochondria in Cancer Cells have **shut down** and **can not accept & redistribute the "electrons"** which **damages the cell & initiates Apoptosis!**

HEALTHY HOUSE vs CANCER HOUSE

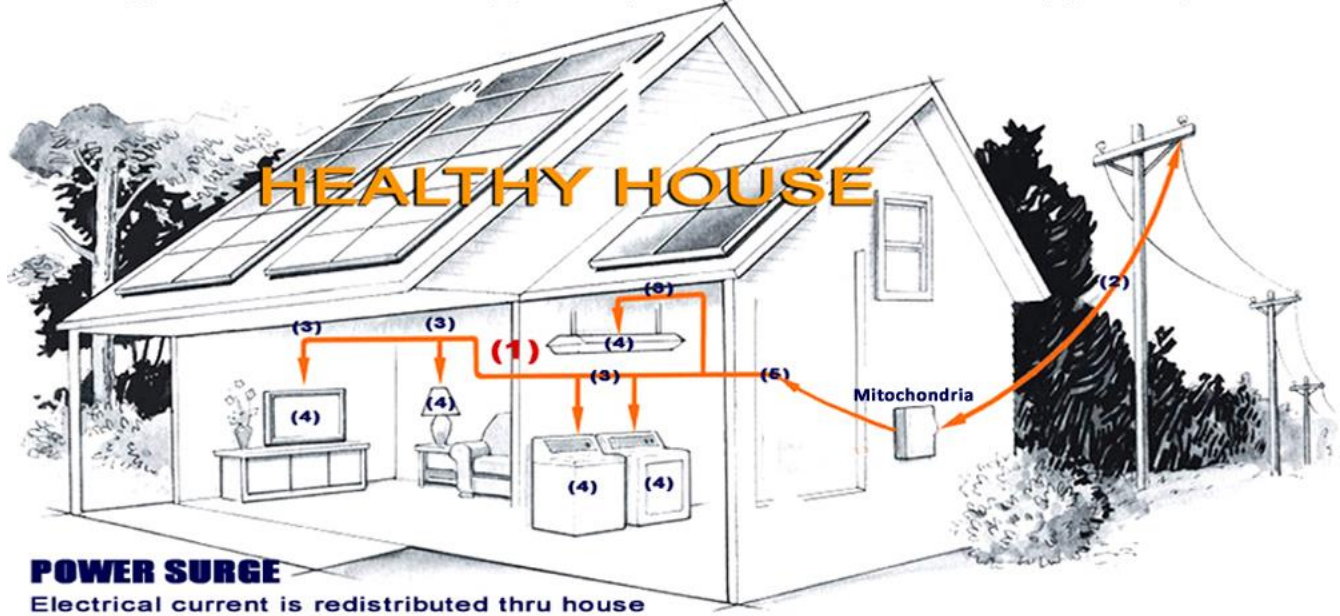
Represents Healthy Cell

Represents Cancer Cell

Electrical Distribution in a 'House' --- COMPARED TO --- Electrical Distribution in a 'Human Cell'

Poly-MVA provides "SUPPORT" to Healthy Cells

- (1) Electrical current is distributed efficiently thru entire house = Healthy Cell
- (2) Electrical current from Electric Pole to breaker box = Poly MVA electrical current from cell membrane to mitochondria
- (3) All circuits are open & excessive electrical current travels to electrical outlets thru house = excessive electrical current being distributed thru cell by mitochondria
- (4) Surge of excessive electrical current reaches all devices in the house = excessive electrical current circulates via electrical pathways throughout cell
- (5) Normal flow of electrical current results in proper functioning house = Normal flow of electrical current results in proper functioning cell



Poly-MVA is "TOXIC" to Cancer Cells

- (1) No electrical current circulating in House = Cancer Cell
- (2) Electrical current from Electric Pole to breaker box = Poly MVA electrical current from cell membrane to mitochondria
- (3) All circuits are shut down & excessive electrical current starts to gather in breaker box = excessive electrical current gathering in mitochondria
- (4) Surge of excessive electrical current can not be redistributed thru house & blows out breaker box = excessive electrical current damages cancer cell mitochondria
- (5) Breaker box is destroyed = Mitochondria is destroyed in Cancer Cell and cell goes into APOPTOSIS(programmed Cell death)

