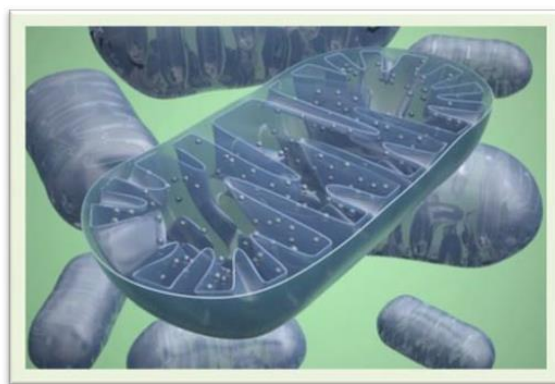


About Cancer Cell Metabolism

Overview of Cell Metabolism

- The human body is composed of more than 100 trillion cells, each of which contains several distinct organelles that carry out a variety of life-sustaining activities such as storing DNA, protein synthesis and energy metabolism.
- The primary cellular organelles responsible for generating much of the cellular energy for survival and growth in normal cells are called mitochondria.
- In addition to producing most of the cell's energy supply, the mitochondria can sometimes also be key players in providing crucial building block molecules for cell growth and initiating cell death in response to stresses.
- Thus, mitochondria are not merely the 'powerhouses of the cell,' they can also be crucial sources of essential building materials and master controllers of cell death/survival.



The Altered Metabolism of a Cancer Cell

- Cancer cells undergo a profound metabolic shift, including repurposing mitochondria for much heavier production of building block molecules, with concomitant upregulation of glycolysis outside the mitochondria to replace lost mitochondrial energy production.
- Notably, increased tumor cell reliance on glycolysis includes an enhanced appetite for glucose (sugar), allowing physicians to identify many tumors inside patients using Positron Emission Tomography (PET) imaging of radioactive glucose selectively concentrated in caners.
- The profoundly altered metabolism of tumor cell mitochondria offers multiple, highly attractive targets for selective attack on cancer cells. Cornerstone's current lead compound exploits the most promising of these.
- Cornerstone's selective attack on tumor cell mitochondria redundantly initiates multiple cell death pathways, potently killing cancer cells.