Oya Altinok, J Cancer Sci Ther 2017, 9:7 (Suppl)
DOI: 10.4172/1948-5956-C1-109

Mitochondrial shuttle mechanisms in coupling of glycolysis and oxidative phosphorylation in colon cancer

Oya Altinok
Drexel University College of Medicine, USA

The requirement for metabolic efficiency forces cancer cells to generate sufficient energy equivalents to support their high proliferative activity. One cycle of glycolysis supplies cells with two molecules of ATP only, while oxidative phosphorylation provides around 36 molecules of ATP. Therefore, many cancer types, including colon cancer, reprogram their metabolism to accelerate mitochondria processes to fulfill the elevated energy demands of cancer cells. However, the long known signature of cancer is elevated glycolysis. We hypothesized that glycolysis and oxidative phosphorylation are functionally coupled processes. In this work we studied the malate-aspartate and lactate shuttle mechanisms of colon cancer mitochondria. The two shuttles cooperate with each other in regulating the NAD^+/NADH pool to enable aerobic oxidation of glucose by mitochondria.

Biography

Oya Altinok is a graduate student at Drexel University College of Medicine and Drexel School of Biomedical Engineering, Science and Health Systems. She is currently working on a Master's thesis in the field of Colon Cancer Metabolism.

oa352@drexel.edu

Notes: