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Degree Objective: M.S.. Endocrinology and Reproductive Physiology

Background: MD, Medical Sciences, University of Calcutta, India

Current Research Project:

Immune cell starvation induced by tumor cells leads to impaired anti-cancer immunity:

Background: Tumor cells employ several redundant mechanisms to evade and suppress immune responses. In this proposal we will investigate a novel mechanism by which tumor cells may incapacitate the immune cells by studying the interplay between ovarian tumor cells and human Natural Killer (NK) cells.

Hypothesis: Tumor cells, by expressing high levels of glucose transporters and by developing specific mechanisms to sustain their proliferation by fermenting glucose to lactic acid, consume the available glucose and other carbohydrate nutrients at a very high rate. We therefore hypothesize, that immune cells in the tumor microenvironment, because they have not developed such adaptive mechanisms, are unable to gain and metabolize sufficient carbohydrate nutrients. Lack of nutrients inhibits immune cell proliferation and instead, forces them to survive via autophagy leading to severe loss of mitochondria, the organelle most required for a robust immune response. In essence, we are proposing that tumor-induced immune cell starvation may be yet another mechanism employed by tumors to suppress and evade the immune system.

Honors:

Grants Received:

Publications:

National Presentations:

Other Presentations:

ERP Service: