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## Introduction

Prostate gland is a complex organ found in men having different components which are named as peripheral, central zone and a periurethral region. These components are ontologically, morphologically and functionally different. 70% of prostate gland is comprised by Peripheral zone which produce and secrete citrate in excessive quantity. This distinctive characteristic of production of citrate and its secretion belongs to very specialized epithelial cells of

prostate benign epithelial cells results due to increased number of zinc transporter ZIP1 in prostate. Various

that the level of m-aconitase is same in these citrate producing cells as compared to citrate oxidizing cells [24,25]. So, it conclude that the low m-aconitase activity was not due to low level of enzyme and it was due to unique intramitochondrial conditions which inhibited enzyme activity. Liu et al. [26] provided the important information that zinc levels in mitochondria of prostate cells were uniquely in higher amount than non-prostate cells. Various studies shows that when amount of zinc becomes low in prostate then m-aconitase is not inhibited and this results in oxidation of citrate. However, it is unlikely that the decrease in citrate in prostate malignancy is solely due to its oxidation. It is not amazing that metabolism of tumor cell involves a curtailed Krebs cycle which have low amount of citrate oxidation. Actually the tumor cells in prostate are also involved in citrate production but they do not accumulate the citrate as like normal prostate cells. Instead, the citrate produced by tumor cells is exported from mitochondria to cytosol via a shuttle such as the citrate: malate shuttle where it is converted to acetyl CoA for lipogenesis. Increase in lipogenesis is very essential for proliferation of tumor cell and their growth; and essential precursor of lipogenesis is citrate. Since this process is also essential for the growth and development of malignant prostate cells, a significant proportion of synthesized citrate must be utilized for lipogenesis in addition to being oxidized. This is an essential area for further investigation regarding the involvement of citrate-related intermediary metabolism and mitochondrial function in prostate malignancy. The exact nature of bioenergetics in early Pca 0(t)-10(y)] TETQ0.000008873 0 595.44 841.92 reW*nBT/F3 9.12 Tf1 0 0 1 130.37 701.47 m2.55 665.24 Tm0 g0 G[( )] TE

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