

Title:

Reprogramming of fatty acid metabolism in cancer

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Presenter:

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Abstract:

A common feature of cancer cells is their ability to rewire their metabolism to sustain the production of ATP and macromolecules needed for cell growth, division and survival. In particular, the importance of altered fatty acid metabolism in cancer has received renewed interest as, aside their principal role as structural components of the membrane matrix, they are important secondary messengers, and can also serve as fuel sources for energy production. In this review, we will examine the mechanisms through which cancer cells rewire their fatty acid metabolism with a focus on four main areas of research. The role of de novo synthesis and exogenous uptake in the cellular pool of fatty acids. The mechanisms through which molecular heterogeneity and oncogenic signal transduction pathways, such as PI3K–AKT–mTOR signaling, regulate fatty acid metabolism. The role of fatty acids as essential mediators of cancer progression and metastasis, through remodeling of the tumor microenvironment. Therapeutic strategies and considerations for successfully targeting fatty acid metabolism in cancer. Further research focusing on the complex interplay between oncogenic signaling and dysregulated fatty acid metabolism holds great promise to uncover novel metabolic vulnerabilities and improve the efficacy of targeted therapies.