



Energy storage efficiency of the tricarboxylic acid cycle

Although the ketogenesis-derived BHB can be used as an energy source for the tricarboxylic acid (TCA) cycle, the major role of BHB in CD8 + Tm cells seems to exclude its function as an ...

The tricarboxylic acid cycle (TCA) is a series of chemical reactions used in aerobic organisms to generate energy via the oxidation of acetylcoenzyme A (CoA) derived ...

The tricarboxylic acid cycle, a fundamental metabolic pathway, plays a central role in energy production and the catabolism of carbohydrates, fats, and amino acids. Through a series of ...

In this study, we established a method for the simultaneous quantification of 31 endogenous metabolites involved three pathways in the tricarboxylic acid (TCA) cycle, glycolysis and ...

The Krebs Cycle, also known as the Citric Acid Cycle or the TCA cycle, is a fundamental biochemical pathway that plays a pivotal role in cellular energy production. Understanding the intricate steps of the Krebs Cycle and its ...

The Tricarboxylic Acid Cycle (TCA), also known as the Krebs cycle or citric acid cycle, is a central metabolic pathway that plays a pivotal role in energy production and the generation of key ...

However, the molecules derived from these processes are used in the tricarboxylic acid (TCA) cycle to generate substrates that enter the ETC for oxidative ...

As one of the iconic pathways in plant metabolism, the tricarboxylic acid (TCA) cycle is commonly thought to not only be responsible for the oxidization of respiratory substrate to drive ATP synthesis but also ...

Abstract. Chemoautotrophic Campylobacteria utilize the reductive tricarboxylic acid (rTCA) cycle for carbon uptake, a metabolic pathway that is more energy-efficient and discriminates less against ^{13}C ...

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In all biological systems central carbon energy metabolism, which consists of tricarboxylic acid cycle (TCA), glycolysis, oxidative phosphorylation pathway, and the corresponding co-factors, ...

2. Acetyl-CoA enters the tricarboxylic acid cycle as a substrate of citrate synthase, which adds it to oxaloacetate to make citrate. This is the reason that this cycle is also called the citric acid ...



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Recent studies indicate a fifth mechanism whereby mitochondria release TCA (tricarboxylic acid) cycle metabolites to control cell fate and function (Fig. 2).

The vanadium redox flow battery (VRFB) has been substantially developed as a large-scale energy storage and conversion device for the use of renewable energies [1, 2]. The ...

The tricarboxylic acid cycle (TCA cycle) is the core pathway for the metabolism of various nutrients in microorganisms. The carbon chain degradation products of sugars, fats, ...

The citric acid cycle (CAC), also known as the tricarboxylic acid cycle or Krebs cycle, is one of the most important metabolic pathways in the cells of aerobic organisms (Gupta

Results show that mature compost promoted pyruvate metabolism, tricarboxylic acid (TCA) cycle, and oxidative phosphorylation to produce heat and energy to accelerate ...

Metabolic engineering to produce tricarboxylic acid (TCA) cycle-derived chemicals is usually associated with problems of low production yield and impaired cellular metabolism. In this work, we found ...

Although this network is often viewed primarily as an energy producing engine fueling ATP synthesis via oxidative phosphorylation, mounting evidence reveals that this metabolic hub ...

The inputs (anaplerosis) and outputs (cataplerosis) of the TCA cycle allow it to both catabolize glucose, amino acids, and fatty acids for energy and to produce them when needed.

Named for its metabolism of the conjugate bases (citrate, isocitrate, and cis -aconitate) of three tricarboxylic acids in the early steps of the pathway, the Tricarboxylic Acid ...

At the nexus of both catabolic and anabolic metabolism lies the tricarboxylic acid (TCA) cycle, a broadly conserved metabolic pathway consisting of a cyclic series of chemical ...

A reductive tricarboxylic acid (rTCA) cycle could have fixed carbon dioxide as biochemically useful energy-storage molecules on early Earth. Nonenzymatic chemical pathways for some steps of ...

Plant glycolysis and the tricarboxylic acid (TCA) cycle are key pathways of central carbon metabolism. They facilitate energy transformation, provide redox balance, and supply the ...

The tricarboxylic acid (TCA) cycle, otherwise known as the Krebs cycle, is a central metabolic pathway that performs the essential function of oxidizing nutrients to support cellular bioenergetics. More recently, it has become ...



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The method was further applied to study the attenuating effects of the SQ in a chemotherapeutic agents-induced C2C12 myotube atrophy model to evaluate the changes in ...

The energy-efficient reductive tricarboxylic acid cycle drives carbon uptake and transfer to higher trophic levels within the Kueishantao shallow-water hydrothermal system

In this review, we revisit the TCA cycle, including its potential origins and the history of its discovery. We provide a detailed accounting of the requirements for sustained ...

2. Acetyl-CoA enters the tricarboxylic acid cycle as a substrate of citrate synthase, which adds it to oxaloacetate to make citrate. This is the reason that this cycle is also called the citric acid cycle. Citrate, having three ...

The TCA cycle (tricarboxylic acid cycle) is also called the citric acid cycle or, sometimes, the Krebs cycle. It takes up where glycolysis left off, improving the efficiency of respiration by ...

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