Lipidome

The lipidome refers to the totality of lipids in cells. Lipids are one of the four major molecular components of biological organisms, along with proteins, sugars and nucleic acids. Lipidome is a term coined in the context of omics in modern biology, within the field of lipidomics.

Solid tumors are characterized by global metabolic alterations which contribute to their growth and progression. Altered gene expression profiles and plasma lipid composition suggested a role for metabolic reprogramming in colorectal cancer (CRC) development. However, a conclusive picture of CRC-associated lipidome alterations in the tumor tissue has not emerged. Here, we determined molar abundances of 342 species from 20 lipid classes in matched biopsies of CRC and adjacent normal mucosa. We demonstrate that in contrast to previous reports, CRC shows a largely preserved lipidome composition that resembles that of normal colonic mucosa. Important exceptions include increased levels of lyso-phosphatidylinositols in CRC and reduced abundance of ether phospholipids in advanced stages of CRC. As such, our observations challenge the concept of widespread alterations in lipid metabolism in CRC and rather suggest changes in the cellular lipid profile that are limited to selected lipids involved in signaling and the scavenging of reactive oxygen species. [1].

Unclassified

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[1)]

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