

# Redox and metabolic reprogramming in breast cancer and cancer-associated adipose tissue

A. Jankovic<sup>I</sup>, T. Zakic<sup>I</sup>, M.B. Soskic<sup>I</sup>, B.S. Galic<sup>II</sup>, A. Korac<sup>III</sup>, **B. Korac<sup>I,III</sup>**

<sup>I</sup>Institute for Biological Research "Sinisa Stankovic"-National Institute of Republic of Serbia, University of Belgrade, Belgrade, Serbia, <sup>II</sup>Faculty of Medicine, University of Novi Sad, Novi Sad, Serbia, <sup>III</sup>Faculty of Biology, University of Belgrade, Belgrade, Serbia

Redox and metabolic processes are tightly coupled in physiological and pathological conditions. In cancer, their integration takes place on several levels and it is characterized by synchronized reprogramming both in the tumor tissue and its specific microenvironment. In breast cancer, the principle microenvironment is cancer-associated adipose tissue (CAAT). Knowing how the redox-metabolic reprogramming is coordinated in both tumor and CAAT of human breast cancer is imperative both for cancer prevention and the establishment of new therapeutic approaches. This review aims to look at this complex interaction by examining the redox profile and intermediary metabolism, looking at the tumor and CAAT of breast cancer as a unique Warburg organ. Special attention is given to mitochondrial metabolism, bearing in mind the numerous open questions that still exist today, not only in breast cancer, but in cancer in general.

Acknowledgment: This research was supported by the Science Fund of the Republic of Serbia, #7750238, Exploring new avenues in breast cancer research: Redox and metabolic reprogramming of cancer and associated adipose tissue - REFRAME.