

# Redox Modulation of Cancer Progression

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*Abstract:*

ROS and oxidative stress pathways are associated with cancer progression. However, the regulation of redox mechanisms involved in cancer pathophysiology are still poorly understood. The cellular redox status is controlled by an intricate network of proteins with distinct functions, and many of them have been suggested as contributors for cancer phenotype. The understanding of the role of redox-related proteins in cancer progression will

contribute to discover novel biomarkers and therapeutic targets. For this purpose, we will adopt an exploratory research, using a group of databases that quantify gene expression levels and correlate them with cancer outcomes, to verify the impact of this relationship in cancer progression, namely on breast, renal and brain cancers. In addition, the biological relevance of the targets will be validated using adequate cell culture models. In the case of breast cancer, human mammary samples obtained from surgery will also be analyzed. A plethora of natural compounds and their derivatives will be screened for their activity as modulators of key redox-related proteins involved in cancer progression. P-Glycoprotein, lysil oxidase, as well as targets identified in the course of this project will be studied, in order to contribute to discover novel compounds with anticancer therapeutic potential.

Partners:

