Heterotypic culture: The Cross-Talking between epithelial tumor cells, mammary stroma, and platelets in breast cancer: the release of proteolytic enzymes

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Breast cancer is a multifactorial disease heterotypic which for a long time researchers have tried to extract its complexity with cultivation of epithelial cells. This system enabled the advancement of genetics and molecular biology of cancer. However, cultivation of single immortalized breast epithelial cells is insufficient to mimic the tumor microenvironment. There is evidence that in breast carcinomas, 90% of the cells present in the tumor mass, are not neoplastic, stromal cells include resident adipocytes and fibroblasts, a wide range of recruited hematopoietic cells, and newly formed blood vessels with their associated cells. Dynamic and reciprocal communication between epithelial and stromal compartments occurs during breast cancer progression. The stromal cells, such as cancer associated fibroblasts or tumor-associated macrophages, promote tumor progression by secreting growth factors, chemokines, promigratory extracellular matrix components and proteolytic enzymes. In this sense, culture heterotypic basically formed by epithelial cells, mammary stroma, macrophages and platelets exhibit a better alternative for investigation of biochemical signals associated with the proteolytic enzymes and trophic factors agonists of Toll-like receptors.

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