

CANCER STEM CELLS AND MULTIPLE DRUG RESISTANCE IN BREAST CANCER*

A. MUKHOPADHYAY**, A. CHAKRABORTY, S. MUKHOPADHYAY AND J BASAK

Million of new cancer patients are diagnosed each year and over half of these patients die from this disease. As the second leading cause of cancer deaths, breast cancer is estimated to be diagnosed in over one million people worldwide and to cause more than 400,000 deaths each year. Chemotherapy is part of a successful treatment to many cases; however, the development of multidrug resistance (MDR) to it becomes a major obstacle so as to as few as half of the breast cancer patients treated benefit from chemotherapy. MDR is a term used to describe the phenomenon characterized by the ability of drug resistant tumors to exhibit simultaneous resistance to a number of structurally and functionally unrelated chemotherapeutic agents. At present, many mechanisms have been found to be responsible for it, including over expression of the members of the adenosine triphosphate (ATP)-binding cassette (ABC) membrane transporter family, changes of apoptosis-related genes, the alteration of DNA repair gene, cancer stem cells and so on. And up to date, many methods were adopted to overcome MDR, for example natural drugs, chemical drugs and genetic therapy. Advanced cases of breast cancer with 2nd line of treatment failure are chemo-resistant and high in BCSCs. Herein, we will use an aggressive approach to test for best chemo- and/or targeted therapy on BCSCs.
