



A Fight Against Breast Cancer

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Today's woman plays a highly crucial role in society. She is performing multiple roles from taking care of family to being a high profile professional. As she wears these multiple hats she tends to neglect her state of health and thereby falls prey to various diseases.

Among the various health issues a woman generally succumbs to diseases like breast cancer, ovarian and cervical cancer, heart diseases, autoimmune diseases, osteoporosis, depression and anxiety. It is thus the need of the hour to have modern medicine and technology to alleviate her sufferings.

Specific concern today is the increasing number of breast cancer cases which accounts for 14% of all cancers in women. The precise cause of breast cancer is unclear but the chances of getting breast cancer increases in high risk woman. The high risk criteria includes women with a family history of both breast and ovarian cancer which specifically highlights BRCA1/2 mutation. The other risk factors that make a woman more prone to breast cancer are age, lifestyle (this includes lack of exercise, smoking, drinking etc). Exposure to radiation, race, being overweight, history of menstruation, pregnancy, breastfeeding and other occupational exposure of chemicals.

Breast cancer treatment depends on the stage and type of breast cancer. The treatment generally follows surgery, radiation, chemotherapy or combination of these. Most of the times the chemotherapy involves the use of synthetic drugs. These drugs do not only kill the tumor cells but also kill the normal cells and thus thereby imparting major side effects of chemotherapy. In order to minimize the adverse effects of chemotherapy, it is thus most important to develop drugs that can target only cancer cells and have no or minimal effect on normal cell population. Our lab is working towards this goal and is also focused on screening the novel molecules for anti cancer stem cell properties along with anticancer properties. Cancer stem cells (CSCs) are the tumor-initiating cells

that are inherently resistant to conventional cytotoxic agents. Most of the standard of care chemotherapeutic drugs today end up killing cancer cells while sparing CSC's and thus after a while giving rise to a full blown tumor with high metastatic potential. There is thus an urgent need of agents that can kill the CSC population along with other heterogeneous cell population of tumor cells leading to success of chemotherapy.

As it is well said that "prevention is better than cure", and thus having regular screening, checkups, having healthy diet-consuming mostly plant based products, exercise, maintaining healthy weight and breastfeeding your babies can minimize the risk to a great extent.

So, let us look forward to a world with healthy and happy women spreading the joy everywhere.

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