Abstract

Worldwide breast cancer is the most frequent neoplasm among women, —2.08 million diagnosed cases in 2012— and 14% of tumor death-related in women are lone to breast cancer (Bray et al., 2018). In Mexico, since 2006, breast cancer is the first cause of tumor death-related in women, and only 10% of the detected cases are diagnosed at stage I (Knaul et al., 2009). Therefore, in Mexico exists the premiant need to develop strategies that focus breast cancer management to earlier detection. Circulating tumor cells (CTC) are cells that, both, primary and/or metastatic tumors, shed to the circulation and can travel to distant organs, where they can initiate metastatic lesions (Xue et al., 2014). CTC feedstock can be blood; hence CTC isolation is a minimally invasive procedure that could enable earlier detection of metastatic progression, therapeutic response, and tumor relapse (Yu, Stott, Toner, Maheswaran, & Haber, 2011). CTCs are a scarce population (1-10 cells in 1mL of whole blood) but also heterogeneous, CTC analysis could shed the information to further deepen in the knowledge of CTC biology.

In this observational, prospective project our objective is to establish a methodology to achieve CTC isolation by negative selection staining with flow-cytometry that enable us capture CTC alive suitable for CTC molecular characterization of the transcriptome by either RNA-seq or microarrays, in metastatic and non-metastatic breast cancer patients. This project will enable to isolate live CTC for downstream analyses.
Bibliographic references.


