A Review on breast milk: The new source of stem cells

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Abstract

The benefits of breastfeeding are widely known. The evidence of stem cells content in breast milk has strengthen the promotion on breastfeeding as it hold many promising potentials in the future to the suckling infants. Stem cell therapy is a very fascinating and controversial area nowadays. It has potential use in regenerative medicine to replace damaged cells with new healthy cells that can be differentiated from stem cells (Sekhar & Bisht, 2006). However the first challenge is harvesting stem cells from embryo or adult stem cells are invasive and controversial. The stem cells from the human breast milk lured many researchers as they are readily available and non-invasive. They can be differentiated into many types of cells as they possess embryonic genes as compared to adult stem cells (Hassiotou et al., 2012). The breast milk stem cells (hBSCs) are identified mostly via flow-cytometry and reverse transcription polymerase chain reaction (RT-PCR) where they expressed the markers for various stem cells (Hassiotou, Geddes, & Hartmann, 2013). hBSCs have self-renewal capabilities and able to differentiate into 3 germ layer cells at par with embryonic stem cells (ESC) (Hassiotou et al., 2012). hBSCs also have unique plasticity which could be the mechanism in which they are observed to be involved in breast cancer development (Ablett, Singh, & Clarke, 2012). This review summarize the background on how these cells were originated, the methods used to identify stem cells markers expression in hBSCs, the pluripotency of the hBSCs and finally the discussion on possible usage of these hBSCs in the future.