## TOUP 2nd World Congress on Cell Science & Stem Cell Research Conferences Accelerating Scientific Discovery

November 12-14, 2012 Hilton San Antonio Airport, USA

## Identification of a novel pathway that is critical for the function of breast cancer stem cells

Monther Al-Alwan, Ghida Majed Sleiman, Safiah Olabi, Samiyah Alkhaldi, Hazem Ghebeh, Abdullah Al-Dhafyan, Amer Al Mazrou, Pulicat Manogaran and Chaker Adra

King Faisal Specialist Hospital and Research Center, Saudi Arabia

reatment of metastasized tumor remains limited since most chemotherapeutic remedies target bulk of differentiated cancer L cells sparing cancer stem cells. It is believed that this small number of stem cells remains dormant before they become activated again and induces tumor relapse and metastasis. The function and maintenance of cancer stem cell pool within the tumor remain largely unknown. We have previously reported that the expression of actin-bundling protein (fascin) in breast cancer cells regulates various metastasis-associated genes resulting in increased metastasis and shorter survival. To examine whether it plays a role in regulating cancer stem cell phenotype and function in breast cancer cells, fascin was knockdown in MDA-MB-231 cell and expressed in T47-D cells, which are positive and negative for fascin, respectively. There was a significant association between fascin expression and the stem cell-like phenotype (CD44<sup>high</sup>/CD24<sup>low</sup>). In addition, fascin-positive cells demonstrated increased Notch self-renewal pathway and higher number of ALDH-positive and mamosphere-forming cells. Most importantly, fascin-positive cells were more resistance to apoptosis when exposed to chemotherapeutic agents. Altogether, our data support the existence of small subpopulation in breast cancer cells with a stem cell characteristic and fascin play a key role in regulating the function of this cancer stem cell population

## Biography

Monther Al-Alwan is a scientist at the Stem Cell and Tissue Re-engineering program, King Faisal Specialist Hospital and Research Centre, Riyadh, Saudi Arabia since 2007. He holds MSc and Ph.D. in Immunology from Dalhousie University, Canada. Dr. Al-Alwan conducted a postdoctoral fellowship at the University of Manitoba, Canada. Currently, he is actively involved in dissecting the molecular pathway that regulates breast cancer metastasis and studying the role of cancer stem cell in this process.

Dr Al-alwan is an author in 17 peer-reviewed publications. He has delivered several invited lectures and a regular reviewer for various international journals

MAlwan@kfshrc.edu.sa