Li-Mei Chen, J Cancer Sci Ther 2012, 4:10
http://dx.doi.org/10.4172/1948-5956.S1.022

OMICS Group Conferences
Accelerating Scientific Discovery

2nd World Congress on
Cancer Science & Therapy

September 10-12, 2012 Hilton San Antonio Airport, USA

# Differential activation of signaling pathways in epithelial cells in response to cigarette smoking

**Li-Mei Chen**
University of Central Florida College of Medicine, USA

Cigarette smoking is the leading cause of preventable disease and death in the United States. It was estimated that about 20% of the adult population in the United States were smokers by 2010. Cigarette smoke contains more than 7,000 chemicals and at least 250 of them are toxic chemicals. Among these harmful chemicals, at least 69 can cause cancer. The epithelium provides a barrier between the environment and the underlying tissue. The boundary between epithelial cells is formed by intercellular junctions that join adjacent cells to form a continuous barrier. Tumor cell transformation is the result of multiple cellular insults and events, but a loss of the epithelial compartmentalization is believed to play a critical role in epithelial precancerous development. Loss of barrier integrity may promote fluid movement from interstitial regions into the lumen, or facilitate the movement of toxic agents from the lumen into the underlying tissue. Cigarette smoking can damage epithelial cell barrier integrity by disrupting the epithelial cell tight junction formation and maintenance. The disrupted tight junction can be attributed to the reduction of tight junction protein expression. Various amounts of cigarette smoke applied to the epithelial cells can activate different signaling pathways in epithelial cells and can trigger epithelial cell proliferation or can activate stress-induced survival mechanisms. Subsequently, gene expressions can be differentially regulated and eventually the epithelial cells will morph away from the normal epithelial state.

## Biography

Li-Mei Chen received her M.D. from Hunan Medical University in 1986, and her Ph.D. in Biochemistry and Molecular Biology from Medical University of South Carolina in 1997. Currently she is a cancer researcher in University of Central Florida College of Medicine. She has co-authored over 40 peer-reviewed research articles. Her research areas of interest include epithelial membrane tight junction regulation, signal transduction, inflammation, and cancer biology.

Limei.Chen@ucf.edu