Robert-Alain Toillon, J Cancer Sci Ther 2015
http://dx.doi.org/10.4172/1948-5956.S1.041

OMICS International
conferenceseries.com

Implication of tyrosine kinase receptor networks in therapy resistance

Robert-Alain Toillon
University of Lille, France

During the past years, we showed that neurotrophins, especially the nerve growth factor (NGF), well known for its involvement in the survival and differentiation of neurons, are also of importance in breast tumor development. In light of the role of Trks in cancer cell biology, strategies aimed at targeting the Trk tyrosine kinase domain have been tested. For instance, CEP-701 (Lestaurtinib) has been shown to exhibit some efficiency in preclinical models when used as a single agent or in combination with other cytotoxic drugs. Nevertheless, clinical trials fail to demonstrate the efficiency of Trk tyrosine kinase inhibitors in cancer treatment, as cancer relapse occurs rapidly with a burst of tumor cell growth. The rapid relapse indicates that resistance mechanism should already exist in cancer cells at the beginning of the treatment. Indeed, Tyrosine Kinase Receptor-mediated signaling pathways share multiple elements and inhibiting one type of TKR can result in the compensatory recruitment of downstream components by other co-receptors. Our results showed that tumor cell resistance to Trk inhibitors is driven by membrane receptor signaling platforms. Our findings of the existence and the importance of TrkA phosphorylation independent signalingconstitute a real change of paradigm on the comprehension of Trk-mediated neurotrophins effects. So, our scientific projects are focused on the study of integrated signaling networks of neurotrophins and proneurotrophins as well as their contributions in increasing aggressive phenotype of cancer cells.

Biography

Robert-Alain Toillon has completed his PhD at the age of 28 years from Lille University and Postdoctoral studies from UniversitéLibre de Bruxelles. He is the Director of "Neurotrophin signaling and therapy resistance" team in INSERM U908 lab. He was hired as Cell Biology Professor of Lille University in 2013 and published more than 30 papers in reputed journals.

Notes: