



Manitoba Neuroscience Network

2015/2016 Seminar & Visiting Speaker Series

Friday, November 27th, 2015 | 9:00 am



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TOPIC: "Targeting Mevalonate Cascade: A New Advancement in Glioblastoma Therapeutic Approach?"

Location: PX236/238 PsychHealth Bldg.

In past 10 years, my research has been focused on developing new therapeutic approaches in lung cancer, cardiopulmonary diseases, and infection disease based on modification of apoptosis, autophagy, and unfolded protein response (UPR) pathway. My long-term research plan will be built based on the following major topics:

Role of Autophagy and UPR in Regulation of Transforming Growth Factor beta 1 (TGF- β 1)-induced Epithelial Mesenchymal Transition (EMT) in Lung Cancer Model: In the first step autophagy and UPR will be modulated in breast cancer cell lines (chemical inhibitors and targeting ATG genes and UPR related genes with shRNA) and TGF- β 1-induced EMT will be investigated. The cross talk between EMT related transcription factors and UPR related transcription factors would be also investigated. In the second phase, lung cancer animal model will be used and UPR/Autophagy pathway would be specifically targeted using nanoparticle packed autophagy/UPR inhibitors and EMT/metastasis will be investigated in presence of different inhibitors. Our long-term goal in this project will be decreasing metastasis in lung cancer using novel strategies by targeting autophagy/UPR pathways.

Targeting Mevalonate Cascade as New Approach for Breast Cancer Therapeutic Strategies: Mevalonate cascade is an essential pathway in many living organisms, which is responsible for cholesterol biosynthesis while also, provides prenyl functional groups for protein prenylation. Both cholesterol and prenylated proteins are recently identified as important targets in many cancers. My group will investigate the functions of mevalonate cascade in different breast cancer. We will focus on application of different statins (HMG-CoA inhibitors), geranylgeranyl transferase, and farnesyl transferase inhibitors as new tools to target breast cancer. Our research will be focused on the effects of these inhibitors on apoptosis/autophagy/UPR in breast cancer model. We will use both in vitro and in vivo model for our investigation.

Modulation of Influenza Virus Replication by Targeting Apoptosis/Autophagy/UPR: Influenza viruses are common pathogens of the upper respiratory tract and a substantial disease burden worldwide. It has been reported that seasonal epidemics influence about 15% of the world's population and could cause a significant morbidity and mortality. In the recent years immunization strategies have been developed against influenza viruses infection and is considered as one of the most effective way to protect against the infection, but the vaccine's effectiveness is mainly depends on the match with the prevalent viral strain(s) in a given year. There are also reports of increasing numbers of drug resistant flu strains further highlights a need to identify new anti-influenza strategies. I have recently initiated a preliminary investigation about the role of cell death pathway in influenza virus replication (H1N1). Now I want to continue this line of research and investigate the possibility of the suppressing influenza virus replication by modulation apoptosis/autophagy, or autophagy/ER-stress cross talk and hopefully could provide a new therapeutic strategy for influenza virus infections.

For more information, contact the MNN Office at
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Partners:



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