# Raghu Pandurangi

*Sci-Engi-Medco Solutions, USA*

## A prior activation of apoptosis pathways of tumor (AAAPT) technology: Biomarker for the risk stratification of cancer patients

**Statement of the Problem**: Cancer cells desensitize themselves to circumvent interventions. Consequently, apoptosis index (AI, Apoptosis level) gets reduced making them opaque to treatments. Methods are needed to improve the extent response from treatments and to predict which treatment works better for which patients.

**Potential Solution**: The potential solution would be to a) enhance the cell death selectively in tumor, image cell death in tumor, measure AI using non-invasive imaging technology SPECT, PET, Ultrasound and MRI), b) sensitize low and non-responsive tumors using AAAPT technology and c) use AI as a biomarker to predict the efficacy of treatments.

**Results**: The leading AAAPT drug molecules sensitized cancer stem cells and low-responsive tumor cells by reducing the IC-50 of several FDA approved drugs (e.g. doxorubicin, paclitaxel, gemcitabine) by 10-15 times in vitro. As a result, the combination of AAAPT with chemotherapy achieved tumor regression in an in vivo xenograft triple negative breast cancer (TNBC) tumor model at a much lower dose of chemotherapy and reduced dose resulted cardiotoxicity. SPECT-CT images showed an increase in apoptosis in tumor selectively (increasing efficacy), while reduced the cell death in heart (reducing cardiotoxicity). The potential mechanism of drug action is depicted in the image attached.

**Conclusion and Significance**: Imaging spontaneous tumor apoptosis index permitted the risk stratification of patients as to who responds better to which treatments based on tumor AI. The broader significance of AAAPT is that it can, potentially be used as a neoadjuvant to chemotherapy, radiation therapy, immunotherapy or radionuclide therapy and clinically translatable for a better management of cancer patients.

**Reference**: Raghu Pandurangi: A priori Activation of Apoptosis Pathways of Tumor Technology (AAAPT) for Enhancing Tumor Cell Response to Anticancer Agent, Jan 2016, PCT/US16/68554.

### Speaker Biography

Raghu Pandurangi started his scientific career PhD in spectroscopy followed by post-doctoral training at Radiology and Internal medicine, University of Missouri, Columbia where he remained as a faculty for 10 years. He was a principle investigator position in Shering AG, Germany where he directed and involved in 2 FDA approved drugs (AccuTect and NeoTect). He was a team leader at Mallinckrodt directing apoptosis imaging. He became an entrepreneur in 2013 inventing AAAPT technology for improving FDA approved drugs. Currently, he is the Founder, President and CSO of Sci-Engi-Medco Solutions (SEMCO) and Amplexi-LLC, recipient of several NIH grants and awards.

**e:** raghuaa66@yahoo.com

*Notes:*