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# Thiruvengadam Arumugam,

**Ph.D.**

***Editor of***

***Journal of Integrative Oncology***

# Biography

The goal of his research is to improve the treatment of pancreatic cancer and better patient outcome from this aggressive cancer. Resistance to chemo and radiotherapy is one of the major problems in pancreatic cancer management. Gemcitabine is the standard chemotherapy for this cancer and it has very meager benefits initially, and after that this drug is completely ineffective. His recent study showed that most of the pancreatic cancer cells lines are resistance to gemcitabine and other drugs, suggesting resistant mechanism is global. Resistant cells has mesenchymal phenotype, suggested EMT (Epithelial to Mesenchymal Transition) is one of the phenomena behind the drug resistance. His another approach to understand the drug resistance is identifying the gene expression that will be induced after gemcitabine treatment, this study revealed number of cell cycle regulator, de-toxifying molecules, anti-apoptotic molecules and also lots of novel genes that was not reported elsewhere and related to cancer stem cell survival. He is extending this study further with patient tissue xenograft, aiming to personalized medicine. Another focus of his research is to develop blocker for S100-RAGE interactions. This molecule plays a crucial role in tumor growth, angiogenesis, metastasis and also drug resistance. RAGE is a central mediator of inflammation in tumor tissue, vascular, neuronal, renal complications and other pathological conditions. He engaged in developing novel small peptide to block this RAGE mediated pathological function. Apart from my laboratory research he is also interested in optical imaging for tumor growth, metastasis and gene delivery.

# Research Interests

- Pancreatic Cancer
- Optical imaging for tumor growth
- Metastasis and gene delivery

# Recent Publications

- Bisphosphonates Inhibit Stellate Cell Activity and Enhance Antitumor Effects of Nanoparticle Albumin Bound-Paclitaxel in Pancreatic Ductal Adenocarcinoma. Molecular Cancer Therapeutics 09/2014
- Hematogenous Metastasis of Ovarian Cancer: Rethinking Mode of Spread. Cancer cell. 07/2014; 26(1):77-91.
- Cell surface lactate receptor GPR81 is crucial for cancer cell survival. Cancer research. 06/2014
- Suppression of Pancreatic Cancer by Sulfated Non-Anticoagulant Low Molecular Weight Heparin. Cancer letters 04/2014
- Targeting Pancreatic Ductal Adenocarcinoma Acidic Microenvironment. Scientific Reports 01/2014; 4:4410
- Preliminary evaluation of 1′-[18 F]fluoroethyl-β-D-lactose ([18 F]FEL) for detection of pancreatic cancer in nude mouse orthotopic xenograftsNuclear Medicine and Biology. 01/2014
- Designing and Developing S100P Inhibitor 5-methyl Cromolyn (C5OH) for Pancreatic Cancer Therapy. Molecular Cancer Therapeutics 01/2013
- Interleukin-8 (IL-8) expression is a surrogate marker for effects of gemcitabine on pancreatic ductal adenocarcinoma (PDAC) cells
- Pancreatology 01/2013; 13(2):e5

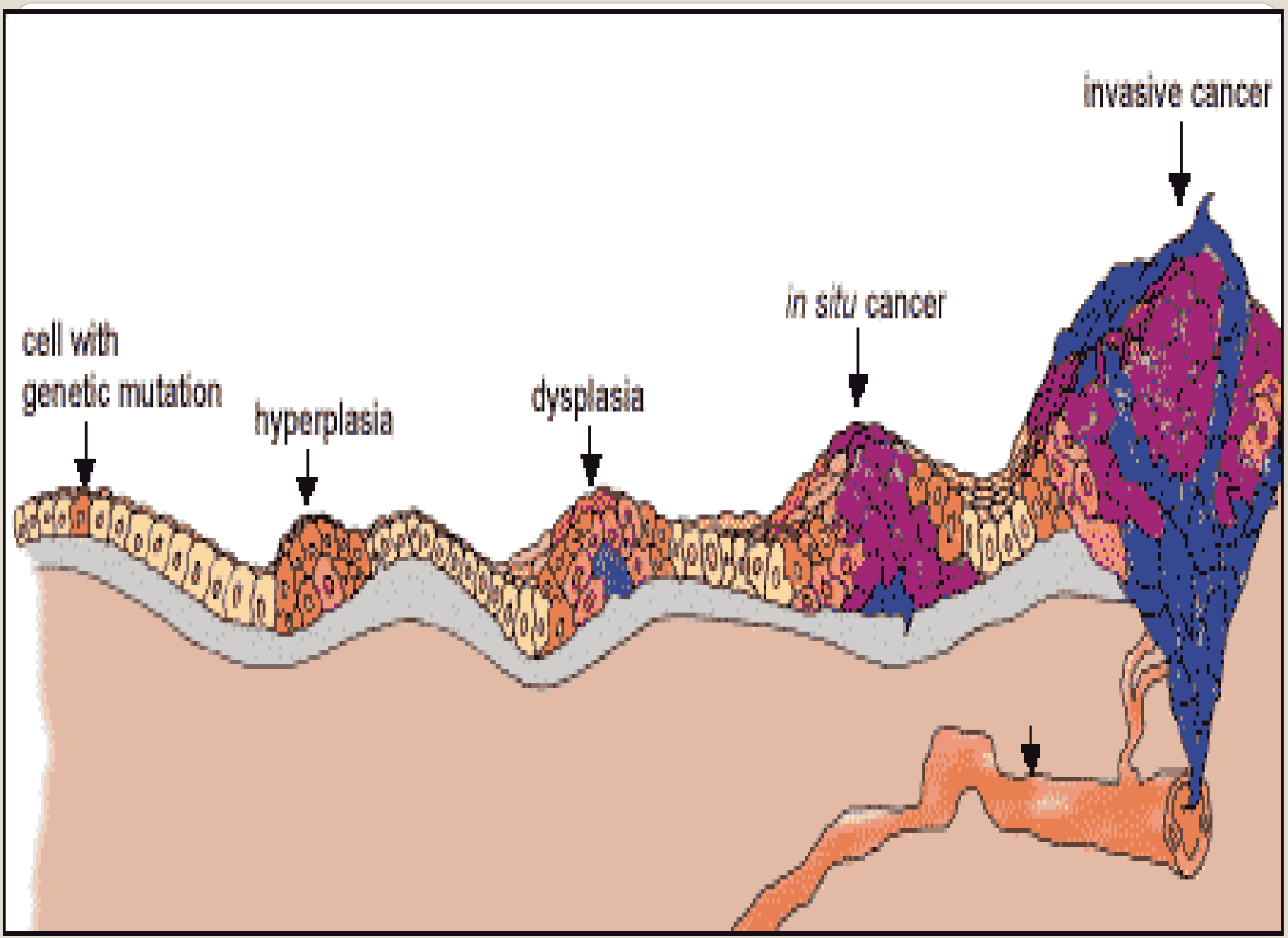
# Tumor growth

- A tumor is an abnormal growth of body tissue. Tumors can be cancerous (malignant) or noncancerous (benign).

- In general, tumors occur when cells divide and grow excessively in the body. Normally, cell growth and division is strictly controlled. New cells are created to replace older ones or to perform new functions. Cells that are damaged or no longer needed die to make room for healthy replacements.

- Types of tumors known to be caused by viruses are:
- Cervical cancer (human papillomavirus)
- Hepatocellular carcinoma (hepatitis B virus)

- If a tumor is cancer, possible treatments include:
- Chemotherapy
- Radiation
- Surgery
- A combination of these methods


invasive cancer
in situ cancer
cell with
genetic mutation
hyperplasia
dysplasia

# Metastasis

Metastasis is the movement or spreading of cancer cells from one organ or tissue to another. Cancer cells usually spread through the blood or the lymph system.

The steps of metastasis include:
separation from the primary tumor

invasion through tissues around the initial lesion and penetration of their basement membranes

entry into the blood vessels and survival within blood - spread via blood vessels is called hematogenous spread

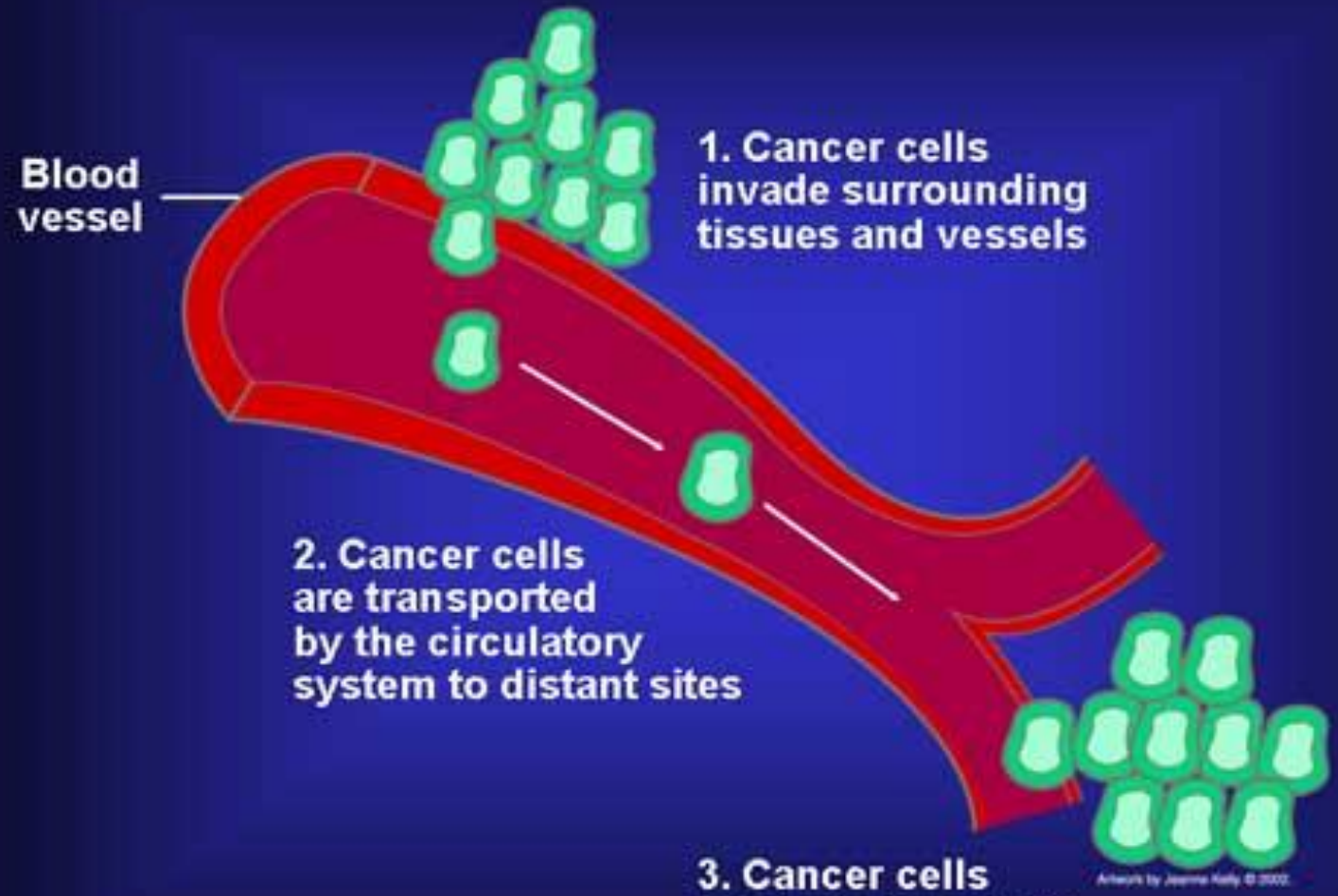
entry into lymphatics or peritoneal cavity - spread via lymph channels is called lymphatic spread

reaching the distant organ like lungs, liver, brain bone etc.

formation of a new lesion along with new blood vessels feeding the tumor - formation of new blood vessels is termed angiogenesis.

All this while, the cancer cells have to avoid being killed by the body's natural immune system.

# What Is Metastasis?



# Related journals

- Chemotherapy: Open Access
- Journal of Leukemia

# Related Conference

- Global Cancer Conference
- 4th World Congress on Cancer Science and Therapy

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# Signature of the editor