

## **Experimental and Basic Sciences**

### **1. Pancreatitis:**

- a. Pain
  - i. Pain Management in AP and CP
  - ii. Pain pathways in AP and CP
- b. Inflammation: local vs systemic
- c. Nutrition: macro and micronutrients in disease progression and/or therapy?
  - i. Calcium
  - ii. Anti-oxidants
- d. Digestion and Metabolism: Food and disease development
  - i. High fat diet in disease development
  - ii. Alcohol induced pancreatitis
- e. Signaling pathways in pancreas... in context of disease development and targeted therapy

### **2. Cancer**

- a. Pancreatic cancer genome and epigenetics
  - i. Understanding mutations in the disease context
  - ii. Targeting pathways vs genes
  - iii. Epigenetics and epigenomes
- b. Animal model and their relevance/suitability in development of therapy against PDAC
  - i. Existing animal models
  - ii. Novel animal model development
  - iii. Models for therapy vs understanding pathology of disease
- c. Origin and progression of PDAC
  - i. The quest for immortality of a cancer cell: role of Cancer Stem Cells in disease development/therapy development
  - ii. Reaching for the stars: Stellate cells in pancreatic cancer therapy
  - iii. Twisted pathways of PDAC development
- d. Chemo-resistance: Reasons behind and overcoming it in PDAC therapy
- e. Early detection and diagnosis of PDAC
  - i. Biomarkers: dream or reality?
  - ii. "Red-flags" in early detection
- f. Finding the Achilles Heel for PDAC:

- i. Development of therapy
  - ii. Efficient delivery of existing and novel therapy
    - 1. Anti-stromal
    - 2. Immune therapy
    - 3. Nano-particle based
- g. Disease environment: local and systemic
  - i. Tumor microenvironment in PDAC progression
  - ii. Host environment in tumor development
  - iii. Hypoxia stress and metabolism
- h. Familial pancreatic cancer: unique and common
  - i. Unique molecular mechanism and targeting therapy
  - ii. Early detection modality

### **Clinical: Pancreatitis and PDAC**

- 1. Multi-disciplinary management
  - i. Pancreatic cancer
  - ii. Pancreatitis
- 2. Surgery
  - i. Minimal invasive techniques
  - ii. Post-operation fistula
  - iii. Pancreatic texture and choice of pancreaticojejunostomy manner
  - iv. Organ-function-preserve (invasion control) surgery
  - v. Demonstration session: Robot surgery, minimal invasive operation,
  - vi. Pancreaticogastrostomy vs. pancreaticojejunostomy
- 3. Imaging
  - i. Functioning and molecular imaging
  - ii. Radio-nucleotide molecular therapy
- 4. Management
  - i. Albumin-bound paclitaxel in pancreatic cancer chemotherapy
  - ii. Gemcitabine in pancreatic cancer chemotherapy: past, now, and future
  - iii. S1: a potential drug in pancreatic cancer?
  - iv. Prospective of Proton and Heavy Ion in pancreatic tumors
    - v. Targeting therapy in pancreatic tumor: theory basis and clinical practice
  - vi. Clinical trials in pancreatic tumors: current situation and prospective

5. Endoscopy
  - i. EUS, ERCP, Seed implantation and nerve block
6. Pancreatic insufficiency
7. The wasting patient (EPC2014)

**Clinical and basic research in non-ductal adenocarcinoma**

1. Pancreatic neuroendocrine tumors
2. IPMN, pancreatic cystadenoma and other precancerous diseases

**Potentially interesting areas that can go either in cancer or in pancreatitis**

1. Beyond the genome: Epigenetics in pathogenesis
2. Manipulating genome: Gene editing in pancreatic diseases
3. Integrated OMICS approach to understand pancreatic disease biology
4. Hijacking stress pathways in pancreatic diseases: Oxidative stress, ER stress, etc. in context of pancreatitis or PDAC