

### **33. Pancreatic cancer: Wound healing gone wrong** **2 units, April 7 and 8, 2026, Mara Sherman**

April 7, 2026

#### **Summary of lecture topics:**

1. An overview of pancreatic cancer in the clinic
  - Pancreatic cancer types and subtypes
  - Clinical presentation and outcomes
  - Current treatments and recent clinical trials testing new therapies
  
2. Mechanisms and models of pancreatic tumorigenesis
  - Diverse preclinical models for studying pancreatic cancer initiation and progression, including strengths and weaknesses
  - Genetic landscape and tumor evolution in primary tumors and metastases
  - Cancer cell-intrinsic signaling pathways regulating tumor progression and orchestrating the fibro-inflammatory stroma
  
3. The pancreatic tumor microenvironment
  - Tumor immune contexture and mechanisms of immune suppression
  - Significance of non-immune stromal components, i.e., cancer-associated fibroblasts and nerves
  - Tumor heterogeneity in the malignant and stromal compartments

#### Key references:

1. Halbrook CJ et al. Pancreatic cancer: Advances and challenges. *Cell*. 2023 Apr 13;186(8):1729-1754. PMID: 37059070.
2. Sherman MH & Beatty GL. Tumor microenvironment in pancreatic cancer pathogenesis and therapeutic resistance. *Annu Rev Pathol*. 2023 Jan 24;18:123-148. PMID: 36130070.
3. Bear AS et al. Challenges and opportunities for pancreatic cancer immunotherapy. *Cancer Cell*. 2020 Dec 14;38(6):788-802. PMID: 32946773.
4. Alonso-Curbelo D et al. A gene-environment-induced epigenetic program initiates tumorigenesis. *Nature*. 2021 Feb;590(7847):642-648. PMID: 33536616.

5. Hwang WL et al. Single-nucleus and spatial transcriptome profiling of pancreatic cancer identifies multicellular dynamics associated with neoadjuvant treatment. *Nature Genetics*. 2022 Aug;54(8):1178-1191. PMID: 35902743.
6. Kemp SB et al. Efficacy of a small-molecule inhibitor of KrasG12D in immunocompetent models of pancreatic cancer. *Cancer Discovery*. 2023 Feb 6;13(2):298-311. PMID: 36472553.
7. Sakamoto et al. The evolutionary origins of recurrent pancreatic cancer. *Cancer Discovery*. 2020 Jun;10(6):792-805. PMID: 32193223.

**April 8, 2026**

**Paper Discussion Day**

Caronni N, La Terza F, Vittoria FM, Barbiera G, Mezzanzanica L, Cuzzola V, Barresi S, Pellegatta M, Canevazzi P, Dunsmore G, Leonardi C, Montaldo E, Lusito E, Dugnani E, Citro A, Ng MSF, Schiavo Lena M, Drago D, Andolfo A, Brugiapaglia S, Scagliotti A, Mortellaro A, Corbo V, Liu Z, Mondino A, Dellabona P, Piemonti L, Taveggia C, Doglioni C, Cappello P, Novelli F, Iannacone M, Ng LG, Ginhoux F, Crippa S, Falconi M, Bonini C, Naldini L, Genua M, Ostuni R. IL-1 $\beta$ + macrophages fuel pathogenic inflammation in pancreatic cancer. *Nature*. 2023 Nov;623(7986):415-422. PMID: 37914939.