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**Manuscript Type:** REVIEW

**Natural killer cells in pancreatic cancer stroma**

Fincham REA *et al.* Natural killer cells in PDAC

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### Abstract

Pancreatic cancer remains one of medicine's largest areas of unmet need. With five-year survival rates of < 8%, little improvement has been made in the last 50 years. Typically presenting with advance stage disease, treatment options are limited. To date, surgery remains the only potentially curative option, however, with such late disease presentation, the majority of patients are unresectable. Thus, new therapeutic options

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Cited by: 118 Author: Albrecht Neesse, Christian Alexander Baue...  
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### The Immune Microenvironment in Pancreatic Cancer

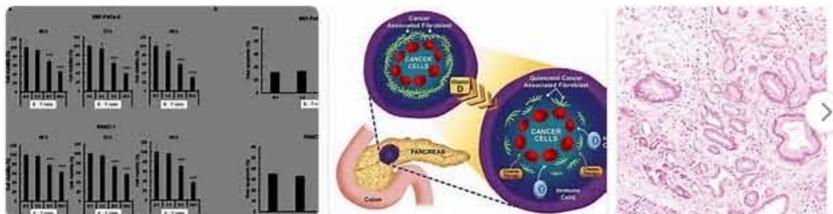
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The biology of solid tumors is strongly determined by the interactions of **cancer cells** with their surrounding microenvironment. In this regard, **pancreatic cancer** (**pancreatic ductal adenocarcinoma**, PDAC) represents a paradigmatic example for the multitude of possible tumor-**stroma** interactions.

Cited by: 11 Author: Magdalena Huber, Corinna U Brehm, Thom...  
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### Images of natural killer cells in Pancreatic cancer stroma

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Cited by: 681 Author: Albrecht Neesse, Patrick Michl, Kristopher ...  
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### (PDF) The desmoplastic stroma of pancreatic cancer is a ...

<https://www.researchgate.net/publication/260109475>

CD8 (+) T cells located in the proximity of **malignant lesions** are associated with a survival advantage, suggesting the existence of immunoeediting. **Pancreatic stellate cells** appear to dictate the...

### Natural killer cells and their therapeutic role in ...

<https://www.sciencedirect.com/science/article/pii/S0163725818300664>

Sep 01, 2018 · Natural Killer (NK) cells are gaining more and more interest as a highly attractive target for cancer immunotherapies, both as pharmaceutical target and for cell therapies. In this systematic review we summarise the pathophysiological adaptations of **NK cells** in pancreatic cancer and highlight possible (future) therapeutic NK cell-related targets.

Cited by: 16 Author: Jonas R.M. Van Audenaerde, Jonas R.M. V...  
Publish Year: 2018

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### Pancreatic cancer stroma: an update on therapeutic ...

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May 11, 2020 · **Pancreatic cancer** cells induce a desmoplastic response within the **tumour stroma** by stimulating **stromal fibroblasts** to upregulate the expression of collagen family proteins and ...

Cited by: 56 Author: Abdel N. Hosen, Abdel N. Hosen, Rolf A. B...  
Publish Year: 2020

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<https://onlinelibrary.wiley.com/doi/full/10.1111/imm.12746>

Apr 18, 2017 · Graphical representation of loss of **natural killer T (NKT)** cells leads to up regulation of inflammatory markers mPGES-1/5-LOX in M2 macrophages and aggravate progression of **pancreatic cancer** and inhibition of mPGES-1/5-LOX leads to inhibition of **pancreatic intraepithelial neoplasia (PanIN)** lesions and, eventually, results in inhibition of pancreatic cancer.

Cited by: 25 Author: Naveena B. Janakiram, Altaf Mohammed, T...  
Publish Year: 2017

### Frontiers | Blockade of Stromal Gas6 Alters Cancer Cell ...

<https://www.frontiersin.org/articles/10.3389/fimmu.2020.00297>

Feb 27, 2020 · Department of Molecular and Clinical **Cancer** Medicine, University of Liverpool, Liverpool, United Kingdom. **Pancreatic ductal adenocarcinoma (PDA)** is one of the deadliest cancers due to its aggressive and metastatic nature. PDA is characterized by a rich tumor **stroma** with abundant macrophages, fibroblasts, and collagen deposition that can represent up to 90% of the tumor mass.

Cited by: 8 Author: Lucy Ireland, Teifion Luckett, Michael C. Sc...  
Publish Year: 2020

### Advances in Pancreatic Cancer Research - National Cancer ...

<https://www.cancer.gov/types/pancreatic/research>

**NK cells** are a type of white blood cell that can kill tumor cells or cells infected with a virus. **NK cell** therapies for **pancreatic cancer** are being tested in early-stage clinical trials. Clinical Trials. Because of the complex nature of **pancreatic cancer**, many experts believe it's important for all patients to join a clinical trial, even if ...

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## Pancreatic Cancer

Medical Condition



Cancer of pancreas, an organ which is behind the lower part of the stomach. This causes abdominal pain, jaundice, itchy skin, fatigue and weight loss.

- Rare (Fewer than 200,000 cases per year in US)
- Often requires lab test or imaging
- Treatable by a medical professional
- Can last several months or years

The exact cause of pancreatic cancer is unknown. Risk factors include diabetes, chronic pancreatitis and stomach ulcer. In the early stage, it is asymptomatic. Common symptoms at later stages are weight loss and abdominal pain. Treatment depends on the location of tumor, age and general health. Treatment includes surgery, chemotherapy and radiation.

### Symptoms

Early stage of pancreatic cancer may be asymptomatic. Symptoms will show up only when the disease progresses and include:

- Digestive problems, including abnormal stools, nausea or vomiting
- Pain in the upper abdomen and back
- Loss of appetite
- Sudden weight Loss
- Jaundice (yellowing of the skin and whites of the eyes)
- Very high sugar levels in diabetic patients

### Treatments

Treatment depends on the location of tumor, age and general health. Treatment includes surgery, chemotherapy and radiation.

#### Medication

- Chemotherapy: Drugs, either taken orally or through injection, kills the cancer cells. In advanced stages, it only helps control growth of cancer cells.
- 5-Fluorouracil · Capecitabine · Irinotecan · Oxaliplatin

**Medical procedures:** Tumor excision · Distal pancreatectomy · Total pancreatectomy

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