# CELL-ebrity gossip: How the communication between cell types drives pancreatic cancer

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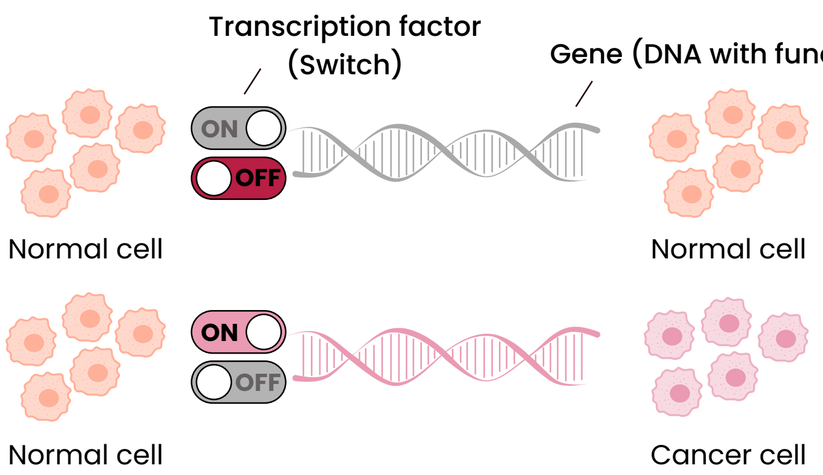
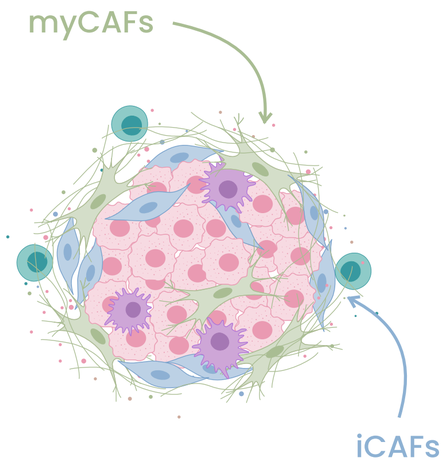
## What do we know?

### Cancer cells switch on unusual genes




### Cancer cells communicate with supporting cells

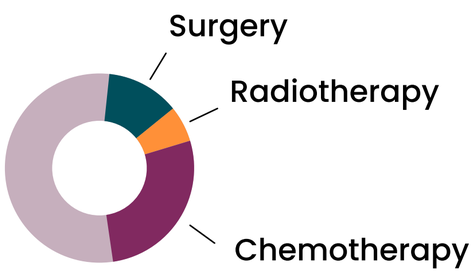



90% of the cells in pancreatic cancer are not cancer cells!

Cancer-associated fibroblasts (CAFs) are one of the most abundant populations and they come in different flavours.

**Are cancer genes different in the presence of iCAFs and myCAFs?**

### Why do we need to understand this communication better?

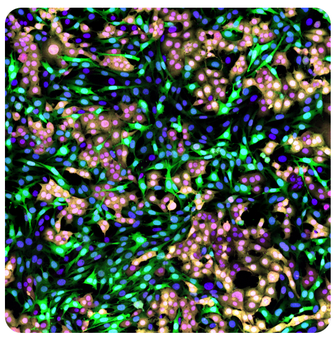



Treatment options for pancreatic cancer patients are limited.

Unfortunately drugs directed towards cancer cells (targeted therapies) have been unsuccessful in this cancer type.

Traditionally scientists have studied cancer cells on their own.

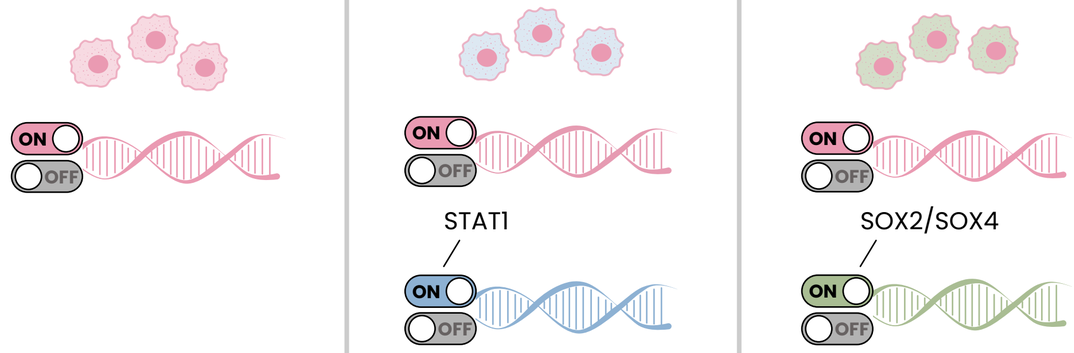
**Can we find more relevant therapies by studying the effect of that surrounding cells have in cancer?**



### What have we found?

| Pancreatic cells grown alone | Pancreatic cells grown with iCAFs | Pancreatic cells grown with myCAFs |
|---|---|---|

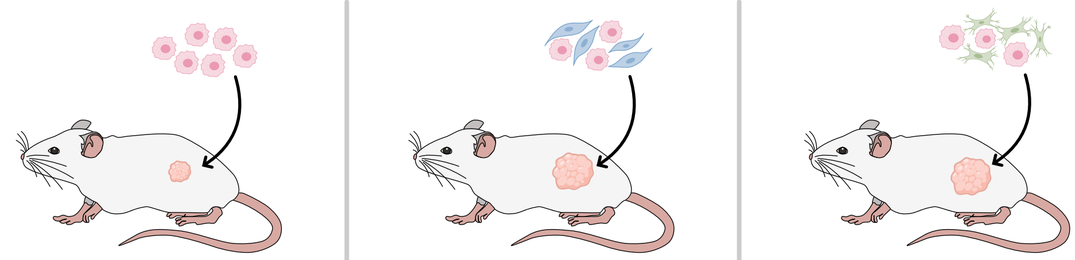
**iCAFs and myCAFs alter the switches turned on by cancer cells**




**iCAFs and myCAFs influence the genes active in cancer cells**

| Genes that promote immune response, therapy resistance and metastasis | Genes that promote immune responses and resistance to treatment | Genes that allow the cancer to spread to other organs |
|---|---|---|
| | **IFN-α and IFN-γ pathways** | **Epithelial to mesenchymal transition** |

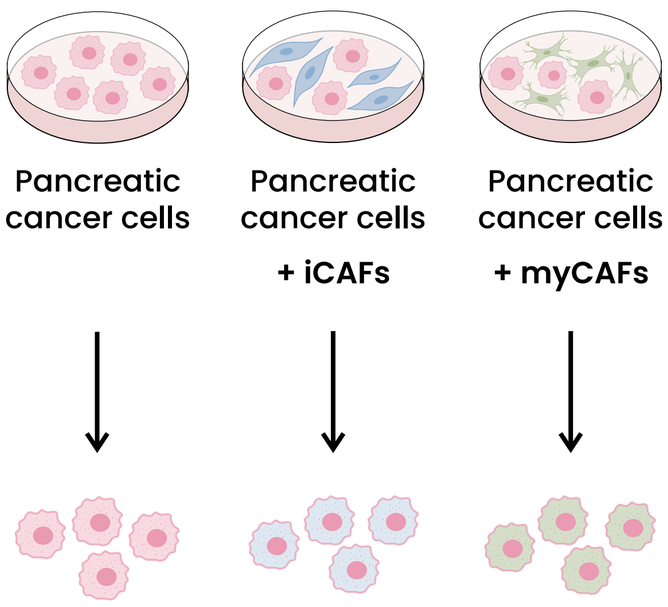
**iCAFs and myCAFs promote faster cancer growth**



**Key conclusion:**

Both iCAFs and myCAFs make pancreatic cancer cells more aggressive, but they use different molecular mechanisms to do so

### What is our strategy?

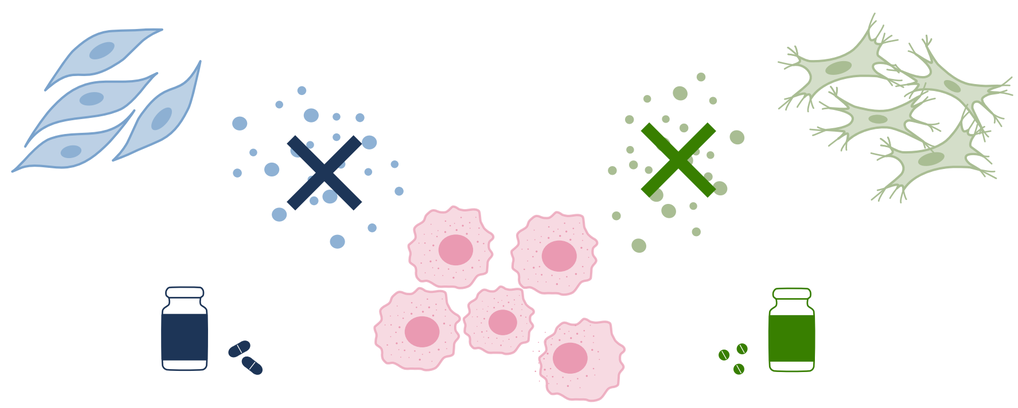



1. We grow pancreatic cancer cells alone or in the presence of iCAFs or myCAFs

2. We separate the cancer cells from the CAFs and analyse DNA

3. Using next-generation sequencing (ATAC-seq, RNA-seq, ChIP-seq), we can "read" the genes of the cancer cells.

### What is the impact of these findings?



Understanding the molecular mechanisms of cellular communication opens new therapeutic windows for much needed pancreatic cancer treatments.

## Why is this important?

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