Novel Dual-Cell Therapy for Pancreatic Cancer

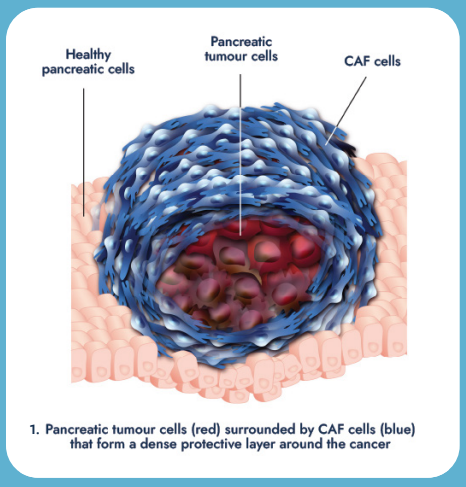
Noxopharm's Chroma™ technology platform is focused on developing oncology drug candidates. A proprietary lead candidate has been selected for the treatment of pancreatic cancer based on its ability to act as a dual-cell therapy targeting both pancreatic cancer cells and the surrounding barrier cells.

Pancreatic Cancer

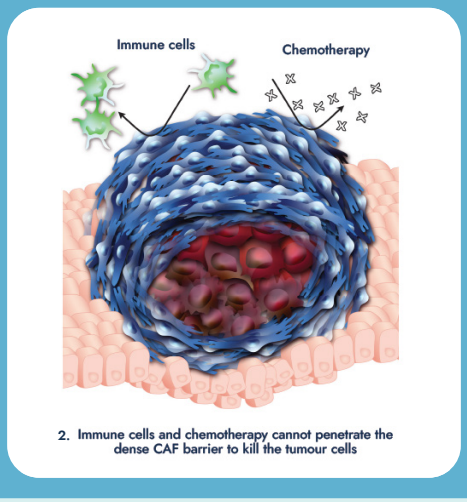
Pancreatic cancer is highly aggressive with low survival rates and is predicted to become the second leading cause of cancer related deaths in the US by 2040[i].

A unique feature of pancreatic cancer is that the tumours are surrounded by a particularly dense barrier of cancer-associated fibroblasts (CAFs). It has only relatively recently been discovered that this dense barrier layer is protecting and nurturing the cancer cells, and this is why pancreatic cancer is particularly difficult to treat.

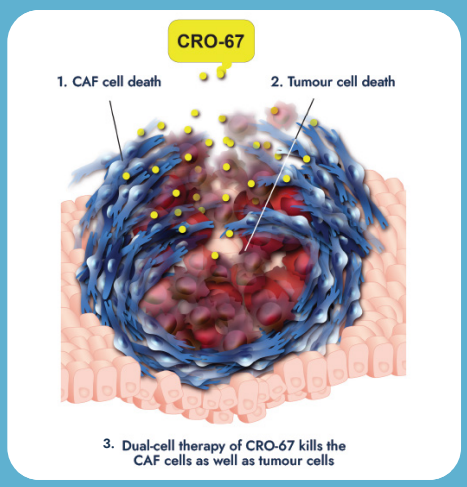
With this new knowledge, Noxopharm has developed a ground-breaking dual-cell therapy approach to treating pancreatic cancer that focuses on attacking both the cancer cells and the CAFs forming the barrier around the tumour with a single novel drug candidate.



1. Pancreatic tumour cells (red) surrounded by CAF cells (blue) that form a dense protective layer around the cancer



2. Immune cells and chemotherapy cannot penetrate the dense CAF barrier to kill the tumour cells



3. Dual-cell therapy of CRO-67 kills the CAF cells as well as tumour cells

CRO-67 is currently in the pre-clinical development stage and has not yet been tested in pancreatic cancer patients. These images are for illustrative purposes only.

Orphan Drug Designation

The Chroma lead drug candidate has been granted Orphan Drug Designation by the US FDA. This status comes with various benefits including tax credits for qualified clinical trials, exemption from some FDA fees and a potential seven years of market exclusivity after approval.

Human Pancreatic Cancer Explant Model

UNSW Sydney has developed a world-first explant model where tumours and the surrounding tissue from cancer patients are surgically removed and kept alive in the laboratory for 12 days. Details on the model have been published in the highly regarded journal Nature: Scientific Reports[ii].

This cutting-edge in-vitro model was used to measure the dual-cell targeting ability of Noxopharm's drug candidate CRO-67 against both the cancer and its surrounding barrier.

On Day 12 the samples were tested across four parameters, all of which showed highly significant results:

- **The number of cancer cells decreased**
- **The number of CAF (barrier) cells decreased**
- **Cell replication decreased**
- **Cell-death increased**

	CRO-67 (µg/mL)	Average % Reduction vs Control	p-value
Tumour Cell Death	50	85%	0.0002
Barrier Cell Death	50	87%	<0.0001
Cell Replication	50	73%	<0.0001
	CRO-67 (µg/mL)	**Average % Increase vs Control**	**p-value**
Total Cell Death	50	621%	<0.0001

Significance p <0.05

Table showing the effect of Noxopharm's lead pancreatic cancer drug candidate on pancreatic cancer cell and CAF (barrier) cell numbers after 12 days of treatment[iii].

In-Vivo Study

The Chroma lead drug candidate has been shown to be bioavailable and biologically active in an animal model. Human pancreatic tumour cells were implanted under the skin of mice, and the mice were treated for 21 days.

Results in the treated mice showed:

- **Tumour volume decreased by 56.7%**
- **The tumour growth rate was slowed by 48%**

The Chroma lead candidate has demonstrated novel dual-cell activity in both in vivo and in vitro studies, potently destroying both the cancer cells and their surrounding barrier.

These highly promising results will now drive further studies to maximise the potential of this new approach to pancreatic cancer treatment.

REFERENCES

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