FACT SHEET

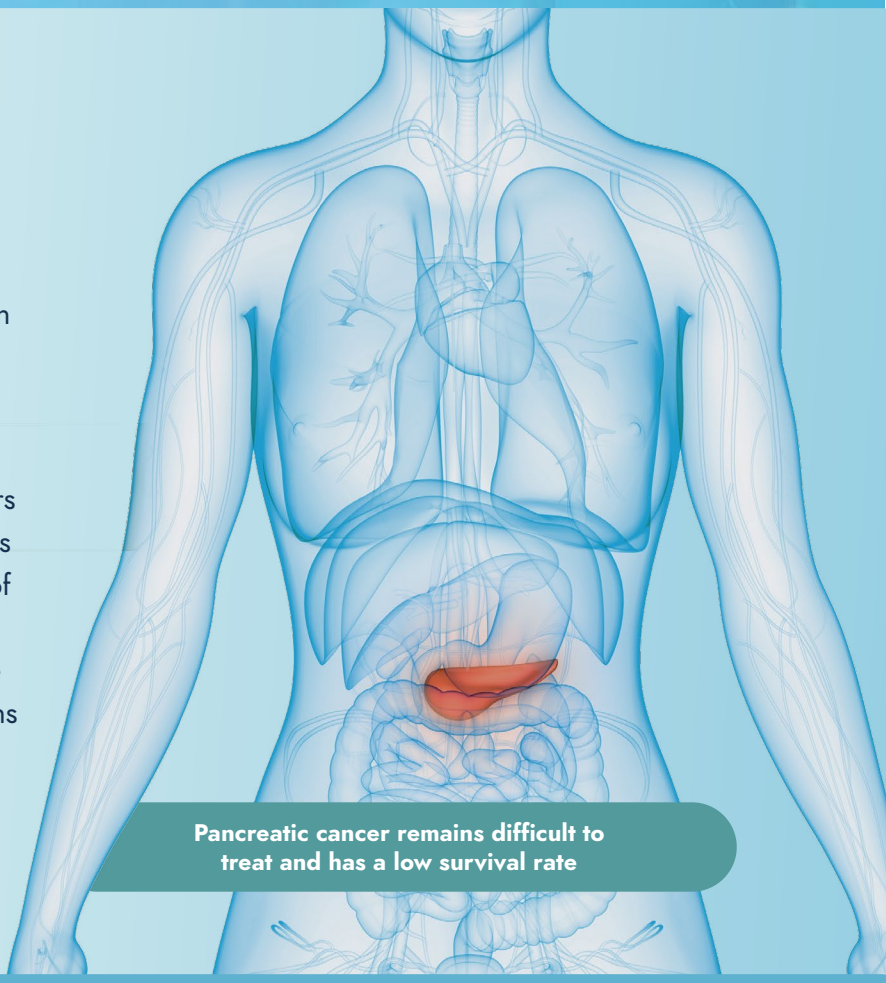
Noxopharm CRO-67

Dual-Cell Therapy for Pancreatic Cancer

Pancreatic Cancer

Pancreatic cancer is highly aggressive with low survival rates – only 9% of people survive five years after diagnosis[i]. It is the seventh leading cause of cancer death worldwide[ii], more common in industrialised countries, and currently is the third leading cause of cancer death in the United States[iii].

Despite an increased understanding of risk factors and improvements in diagnosis, treatment options are still limited. As a consequence, the number of pancreatic cancer cases is predicted to continue increasing, with pancreatic cancer set to become the second leading cause of cancer related deaths in the US by 2030[iv].



Pancreatic cancer remains difficult to treat and has a low survival rate

The Challenge of Pancreatic Cancer

In cancer, there are cells that are found in layers surrounding tumours known as CAFs (cancer-associated fibroblasts). These CAFs create a barrier around the tumour, protecting it from treatment and promoting the growth and spread of the tumour.

A unique feature of pancreatic cancer is that the tumours are surrounded by a particularly dense barrier of CAFs. It has only relatively recently been discovered that this barrier layer is why pancreatic cancer tends to spread rapidly and is particularly difficult to treat[v].

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 – CRO-67.

Noxopharm CRO-67

The Noxopharm proprietary drug candidate CRO-67 has been generated from Noxopharm's Chroma™ technology platform, which is focused primarily on developing oncology drug candidates.

CRO-67 was selected from an extensive drug library and showed the most promising results in a number of screening tests. It has been selected as the lead pancreatic cancer drug candidate due to its ability to act as a dual-cell therapy targeting both pancreatic cancer cells and the CAF (barrier) cells.

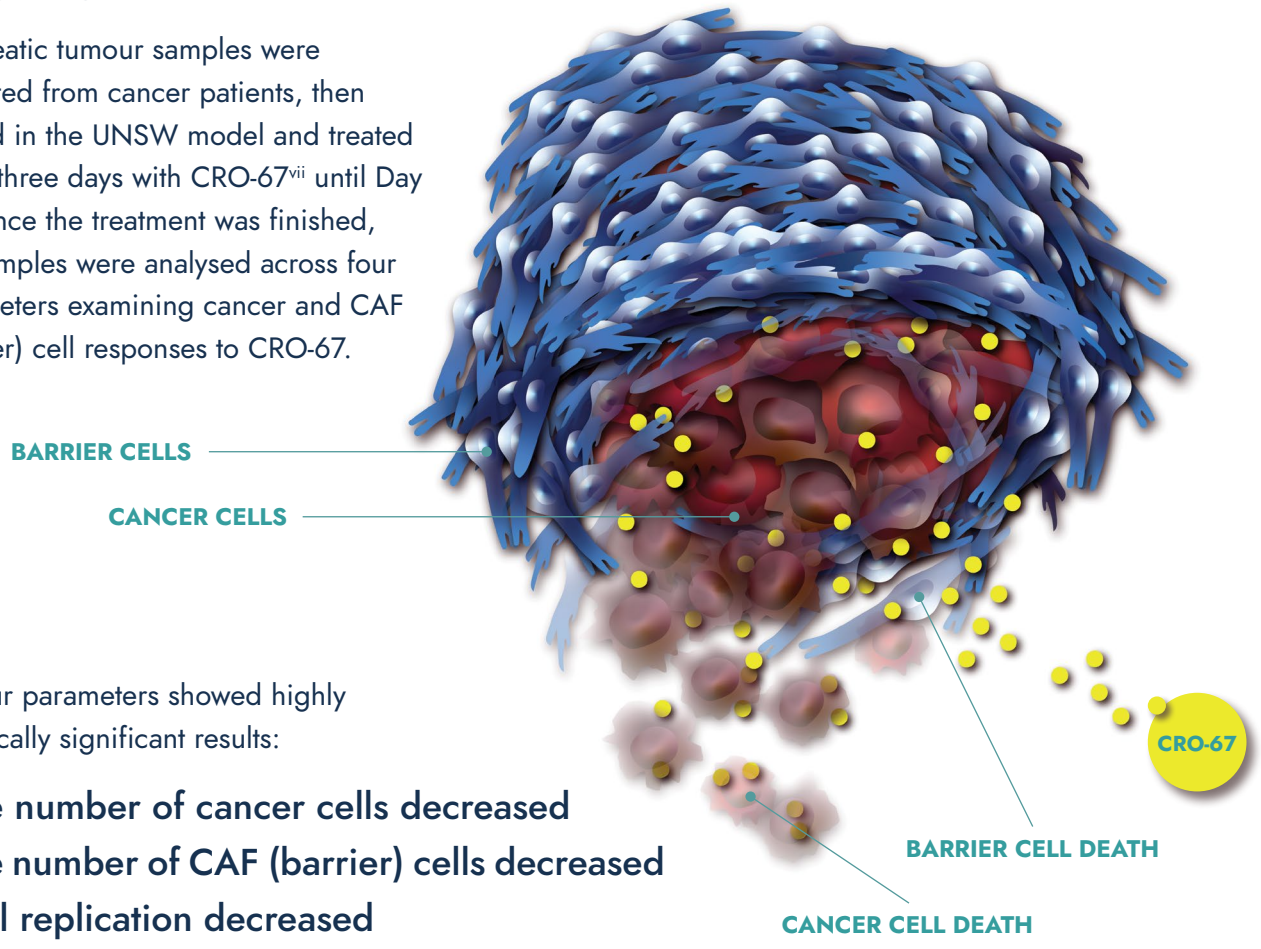
The UNSW Sydney Pancreatic Cancer Explant Model

UNSW Sydney has developed a world-first explant model where tumours and the surrounding tissue (including the barrier formed by CAFs) are surgically removed from cancer patients. Details on the model have been published in the highly regarded journal Nature: Scientific Reports[vi].

These samples are kept alive in the laboratory for 12 days where they continue to grow and behave as they would inside the body. This cutting-edge technology is the first time that the dual-cell ability of Noxopharm's drug candidate CRO-67 can be tested for an extended period in a model that closely replicates how pancreatic cancer behaves in the patient. Using this model, it was possible to measure the activity of CRO-67 against both the cancer and its surrounding barrier.

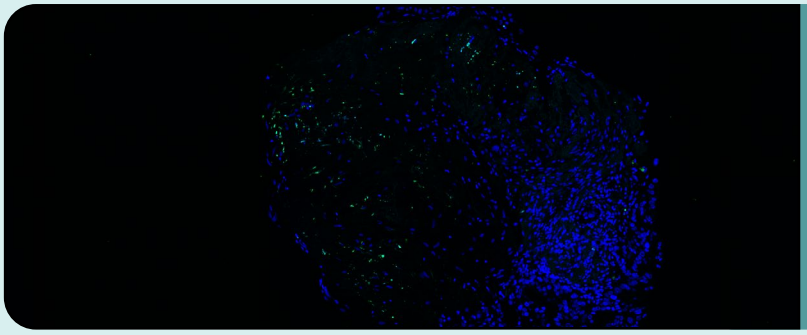
Results

Pancreatic tumour samples were collected from cancer patients, then placed in the UNSW model and treated every three days with CRO-67[vii] until Day 12. Once the treatment was finished, the samples were analysed across four parameters examining cancer and CAF (barrier) cell responses to CRO-67.



All four parameters showed highly statistically significant results:

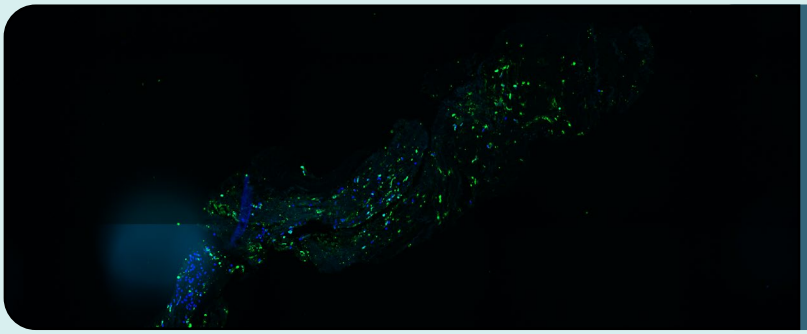
- The number of cancer cells decreased
- The number of CAF (barrier) cells decreased
- Cell replication decreased
- Cell-death increased



Representative tumour sample with no treatment

There are high numbers of living cells (blue) in the cancer tissue sample after 12 days without treatment.

Fluorescence study showing living cells in blue and dead cells in green.



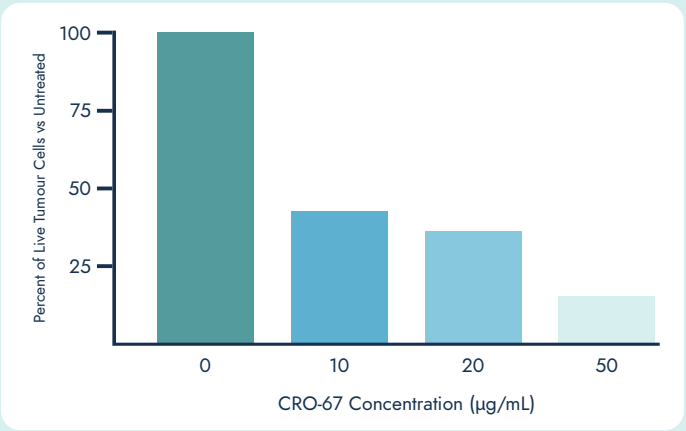
Representative tumour sample with CRO-67 treatment

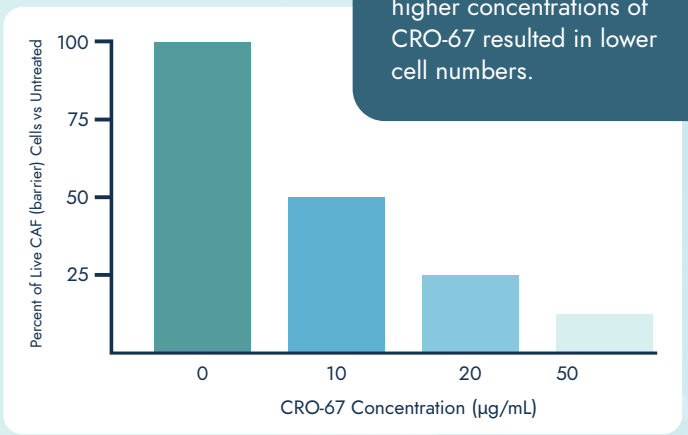
After 12 days treatment with CRO-67 there are predominantly dead cells (green) and very few living cells remaining.

	CRO-67 (µg/mL)	Average % Reduction vs Control	p-value
Tumour Cell Death	10	58%	0.003
	20	63%	0.0018
	50	85%	0.0002
Barrier Cell Death	10	51%	0.0018
	20	75%	<0.0001
	50	87%	<0.0001
Cell Replication	10	54%	<0.0001
	20	59%	<0.0001
	50	73%	<0.0001
	CRO-67 (µg/mL)	**Average % Increase vs Control**	**p-value**
Total Cell Death	10	298%	0.0123
	20	313%	0.0077
	50	621%	<0.0001

Significance p <0.05

Table and graphs showing the effect of increasing concentrations of CRO-67 on pancreatic cancer cell and CAF (barrier) cell numbers after 12 days of treatment. There is a clear treatment effect where higher concentrations of CRO-67 resulted in lower cell numbers.





This world-first study demonstrates CRO-67 as a novel dual-cell therapy, 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.

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