Everybody knows what cancer is

Cells in the body that start to divide rapidly and uncontrollably, with an ability to migrate from one location and spread to distant sites.

But why does a cell become cancerous?

Because a cell becomes undifferentiated. In other words, the cell forgets how to do its job and invests all its energy in proliferating. Unlike normal cells, cancer cells multiply, but do not differentiate.
How do common cancer therapies work?

These therapies take advantage of the uncontrolled proliferation of the cancer cells and kill these cells by targeting the cell division machinery. These therapies are effective but affect healthy cells as well, particularly those with a high rate of cell turnover, inducing undesirable side effects.

What if the best way to stop cancer is not targeting tumor cell death, but inducing cell differentiation?

This is known as differentiation therapy. The key question here is to convince the malignant cells to stop proliferating and return to do their work as a specific cell type.

Advantages of differentiation therapy over conventional therapeutic strategies

Differentiation therapy does not target cell death, so healthy cells within the patient will not be compromised as it happens with chemotherapeutic drugs or gamma irradiation. Differentiation therapy induces the cancer cells into the pathway of terminal differentiation and eventual senescence. Differentiation therapy acts not only against cancer cells but interestingly can turn cancer stem cells (undifferentiated cells) towards completely differentiated (i.e. normal) cells.
What lesson can we learn from our own body?

Are there any natural elements within our organism that could help us fight against cancer?

As a matter of fact, yes there are: the enzymes, which are natural proteins that stimulate and accelerate biological reactions in the body. Particularly, the enzymes secreted by the exocrine pancreas that are essential for the digestion of proteins and fats.

**Pancreatic Enzyme Therapy:**
An old story with promising implications

More than one hundred years ago, Professor John Beard first proposed that the pancreatic enzymes represent the body’s primary defence against cancer and would be useful as a cancer treatment.

Since then, several scientists have endorsed Beard’s hypothesis with encouraging data from patient treatment.

What are we offering?

**PROPANC** is developing a long-term therapy based on a pancreatic proenzyme formulation to prevent tumour recurrence and metastasis, the main cause of patient death from cancer.

Our lead product, **PRP**, is a novel, patented, formulation consisting of two proenzymes mixed in a synergetic ratio.

**What we have achieved**

After extensive laboratory research and a limited amount of human testing, we have evidence that **PRP**:

- Reduces cancer cell growth via promotion of cell differentiation;
- Enhances cell adhesion and may suppress metastasis progression;
- Has no serious side effects and improves patient survival.

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**PANCREATIC SECRETION**
- Trypsinogen
- Chymotrypsinogen
- Pancreatic lipase and amylase
Pancreatic pro-enzyme therapy: Mechanism of action

Why does metastasis occur?

Because a program inside the cell called the Epithelial-Mesenchymal Transition (EMT) is activated, which causes epithelial cancer cells to become invasive and stem cell-like, features which then allow these cancer cells to spread and metastasize.

What does PRP do?

Reverses the conversion from an epithelial to a mesenchymal phenotype and, as such, may reduce the metastatic potential of the tumor cells.

Promotes the acquisition of a less malignant phenotype in addition to a decrease in proliferation due to lineage specific cellular differentiation.
The Company

Our novel cancer treatment is based on the original work undertaken by John Beard, a professor of embryology at Edinburgh University nearly 100 years ago, using fresh pancreatic enzyme extracts.

Through advancements in science and technology, we plan to commercialize an improved version of this hypothesis and market it worldwide.

We are an experienced team of professionals with deep clinical and scientific expertise in the development of new treatment approaches in oncology.

Highlights

Key features

Global demand for effective, safe and easy to administer cancer treatments is increasing rapidly;

Propanc addresses the global, unmet medical need to combat solid tumor recurrence and metastasis.

Propanc is building a robust IP portfolio around its scientific understanding of the effects of proenzymes in cancer, identifying new formulations, new routes of administration and potential new therapeutic targets.

Market opportunity:

Growing demand for new cancer treatments as a result of a rapidly ageing population and changing environmental factors in western countries. According to the World Health Organization, all cancers (excluding non-melanoma skin cancer) are expected to increase from 8.2 million annual deaths in 2012 to over 10 million annual deaths by 2020, exceeding 13 million annual deaths by 2030.
The information is based on published research:

“In vitro treatment of carcinoma cell lines with pancreatic (pro)enzymes suppresses the EMT programme and promotes cell differentiation”.

Perán M, Marchal JA, García MA, Kenyon J, Tosh D.

The text has been adapted by Dr. M Perán.

Illustrations by Tomás Justicia