

Introducing the Cancer Stem Cell

Ever tried to kill a weed by trimming or cutting its edges? It appears gone but eventually it grows back.

For decades medical science has had an almost pathological fixation with the weed approach to treating cancer.

Many if not all of the established chemotherapy treatments used today, are designed to target the rapidly dividing cancer cell. They do a good job at that and appear to kill up to 99% of the cancer cells.

Why is it then that many patients who appear to be cured of their disease following such harsh chemotherapy can suffer a relapse, years later?

The answer to this might lie in the cancer stem cell hypothesis.

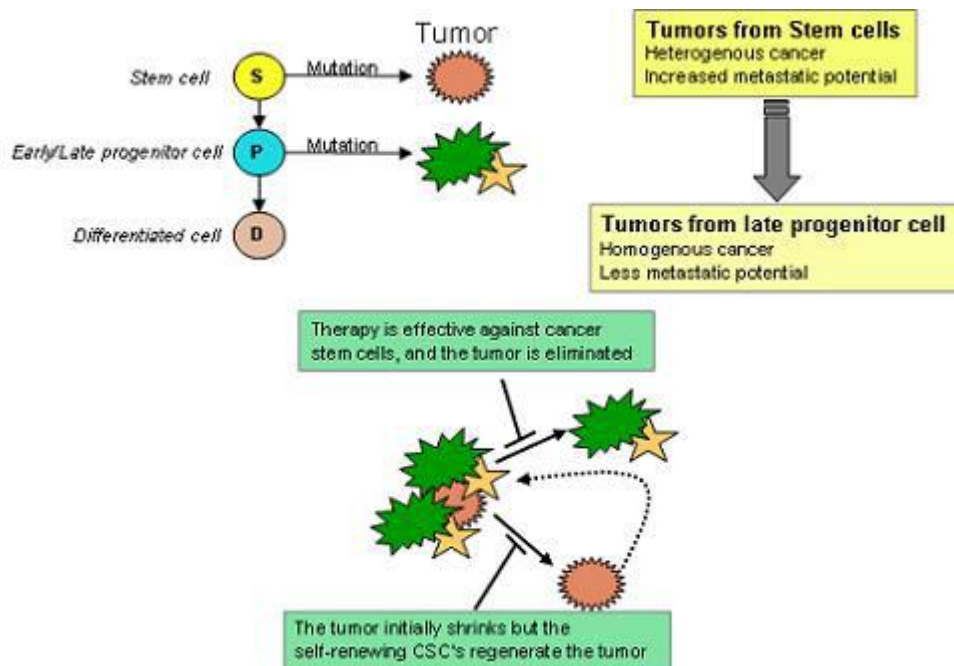
Over 150 years ago pathologists recognised similarities between cancer cells and embryonic cells suggesting that tumours arise from embryo like cells.

Many scientists now widely accept that our bodily tissues are renewed throughout our lives by tissue specific stem cells.

Forty years ago it was postulated that these stem cells were the cell of origin of many if not all cancers.

Due to recent advances in stem cell biology, evidence that these cancer stem cells actually exist is now at hand and gathering pace at research institutions all over the world. In 1994 cancer stem cells were first isolated in leukaemia, followed since then in 2003, by cancer stem cells in breast, and recently in prostate, colon, brain, pancreatic and other cancers.

The intriguing thing about these cancer stem cells is that where the majority of the population of cancer cells in a tumour rapidly divide and are susceptible to chemotherapeutic intervention, the cancer stem cells lie asleep in a quiescent state thereby making them impervious to such treatment. It also appears that these cells, as dangerous as they seem to be, are in the minority comprising only 1% to 10% of the entire population of millions of cancer cells in a tumour.



It appears then that not all cancer cells are born equal! The question of whether we have been targeting the wrong cells has all of a sudden gained some validity and indeed momentum.

Throughout all of this, mainstream medical research has continued to concentrate on the rapidly dividing cancer cell. This theory and the evidence that is accumulating worldwide, makes it imperative that researchers turn their targeting aspirations to the cancer stem cells.

It's been said that with the isolation of these cancer stem cells comes the portrait of the true face of the enemy. The time has now come to turning our efforts at truly eradicating the enemy once and for all.

For A CURE Foundation recognises that many scientists around the world and in Australia are embracing this research. They are actively trying to develop methods to target these cells.

Many eminent researchers believe that if we can develop effective drugs that are able to eradicate this subpopulation of cancer stem cells then we stand a real chance of curing even the most advanced cancers. Others are trying to harness the immune system to attack such cells. Some early clinical trials are taking place and more are planned but its early days yet.

Clearly then the ramifications of this type of research are profound.

For A CURE is doing some research of its own. That is, we are beginning to identify research facilities in Australia that are actively engaged in researching the cancer stem cell. Ultimately our goal is to distribute all of the funds raised to such institutions. Money well spent we think!

What about you?

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