

Lund 2 February, 2018

Newsletter

Written on the occasion of the World cancer day, to be celebrated in Stockholm on February 4th, 2018

Cancer therapy without side effects?

Cancer cells are aggressive and outgrow normal cells around them. They destroy everything in their path, normal body functions are threatened, the patients experience severe symptoms and the cancer selfishly scavenges nourishment, starving the body and depriving the patient of mental energy. Based on the aggression of the cancer, most of us assume that drugs must be highly toxic to stop the disease - an army at least as big, a sharper sword and the most advanced and deadly weapons.

Future cancer therapies

Unfortunately, most weapons are not just directed against the enemy. Healthy tissues are affected by the war on cancer and are often more sensitive than the cancer itself. Treatment is almost invariably accompanied by side effects and patients experience severe symptoms each time their body is treated with toxic drugs, in an attempt to eradicate the tumor. In exchange for the hope of survival, patients even expect to pay the price of side effects, to loose their hair and throw up, not just in the morning - " while you treat the cancer, you kill the patient."

But war is not always won by aggression or by the biggest army. There are numerous examples where strategic thinking has prevailed, confrontation been avoided, the population defended and safety granted. So which strategies are being considered to reduce side effects in the war on cancer and to improve the precision of new drugs? Important advances have been made, resulting in prolonged survival and even cure, in some cases. But often, effects on survival are limited, costs of treatment are sky high and patients suffer tremendously from the side effects. Have we become cynics, who accept side effects as a necessary evil? Are we being nihilistic, seeing suffering as an unavoidable facet of cancer therapy and incomes from therapies to reduce side effects as a valid part of the cancer market?

What is being done to protect the patients? The vast experience of the regulatory authorities is essential to properly examine new drugs and to weight the risk of side effects against the therapeutic

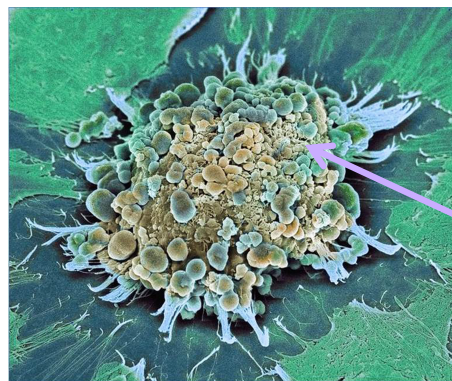
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benefits before allowing their use. Important advances are also being made using combination therapies, where the dose of each toxic drug is reduced or the order of therapy varied, to hopefully minimize the side effects.

What if you can find a way of treating the cancer without destroying the person suffering from the disease? Is it even possible to treat cancers without side effects? Is this a realistic goal of drug development? Are there drugs that specifically attack tumor cells without harming healthy cells in the same tissue? Yes, there are new scientific advances and an increase in the number of molecules that kill cancer cells with higher precision. We are developing such a molecule that we found by serendipity - a molecule that is very attractive to cancer cells but is not going to make you throw up or your hair fall out. As critical academics, we have tried very hard to find a catch, but despite our best efforts, the evidence says that it works.

HAMLET kills a wide range of tumor cells and is active in certain patients and animal models. After studying the natural molecule from human milk, we have developed a synthetic, second-generation drug, Alpha1H, which is suitable for large-scale production, shows precision for tumor cells and reproduces

Tumour cells die in a non-toxic way and many different cancers show the same response



More selective drugs instruct the tumor cells to die without damaging their healthy neighbors

the tumor killing effects of HAMLET. We hope to show beneficial effects in upcoming clinical trials and to make Alpha1H available to patients, who need new treatments to prevent and treat cancer.

Opening up new and different ways of treating and even preventing cancer may sound too good to be true but based on our experience and examples from other scientists, we are convinced that it is possible to find novel ways of treating cancer with better precision and to reduce the burden of side effects.

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For more information, see www.natverketmotcancer.se

<http://www.natverketmotcancer.se/wp-content/uploads/2014/11/V%C3%A4rld>

Catharina Svanborg, Chairman and founder of Hamlet Pharma, +46-709 42 65 49
Catharina.svanborg@med.lu.se

Mats Persson, CEO Hamlet Pharma, +46 705 17 67 57
mats.persson@hamletpharma.com

Hamlet Pharma company listed on AktieTorget, is a company engaged in drug development based on a tumoricidal protein-lipid complex, HAMLET, formed by two natural and harmless molecules found in breast milk. The development aims to develop drugs that primarily will be used for the treatment and prevention of cancer. HAMLET effectively kills tumor cells but have also proven to be safe in the proof-of-concept studies done on humans. The substance has demonstrated therapeutic effect on skin papillomas in a placebo-controlled clinical trial and causes shedding of dead cancer cells by injection into the bladder in patients with bladder cancer. Hamlet Pharma intends to initiate a phase II study with Alpha1H in patients with bladder cancer, a difficult and costly cancer form. HAMLET is a registered trademark of Hamlet Pharma.