

Targeted treatment of cancer receives the Sjöberg Prize

The Royal Swedish Academy of Sciences has decided to award cancer researchers Dennis Slamon and Brian Druker the Sjöberg Prize 2019, worth one million US dollars. The two researchers have developed entirely new ways of beating cancer and have been revolutionary in the development of targeted treatments that improve the prognosis for, and survival of, thousands of patients.

The Sjöberg Prize was first awarded three years ago, after a major donation to research by businessman Bengt Sjöberg, who himself had cancer. The 2019 prize is awarded to **Dennis J. Slamon**, University of California, Los Angeles and **Brian J. Druker**, Oregon Health & Science University, Portland, USA *“for their groundbreaking contributions to the clinical development of targeted therapy directed against genetic aberrations in cancer.”*

Dennis Slamon and **Brian Druker** are clinical cancer researchers, whose work has revolutionised the treatment of patients with breast cancer and chronic myeloid leukaemia, respectively. They have built upon basic findings and been of decisive importance in these not staying on the laboratory bench. Instead, they have made them of practical benefit for patients.

The prize is for entirely new targeted treatment at gene level, focusing on specific changes that are only found in tumour cells. The treatment has fewer negative effects on healthy cells and, often, fewer side-effects than traditional treatment with chemotherapy and radiotherapy.

Stops cancer spreading

Of the women who get breast cancer, around 15 percent have the aggressive HER2-positive form that has a high risk of relapse. The HER2 gene governs the formation of a protein which, in excess amounts, leads to uncontrolled cell division. Dennis Slamon discovered that it was possible to use an antibody, trastuzumab, that attached to the protein. In this way the uncontrolled cell division is blocked and the spread of the cancer can be stopped, particularly if the treatment is combined with chemotherapy.

Brian Druker has instead researched chronic myeloid leukaemia, a blood cancer that develops in bone marrow and its stem cells. In this case, a faulty protein makes the cells in the bone marrow divide too quickly and form far too many white blood cells. Brian Druker demonstrated that a molecule, called imatinib, that blocks the defective protein can also prevent the additional production of white blood cells. A cancer that previously had extremely high mortality can now be effectively treated and controlled.

Initially, for both Dennis Slamon and Brian Druker, it was not easy to convince the pharmaceutical industry to invest in this form of targeted treatment. However, trastuzumab is now established in the arsenal of increasingly effective breast cancer pharmaceuticals around the world. And, for patients with chronic myeloid leukaemia, imatinib has led to a dramatic improvement in the chances of long-term survival.

"Fantastic news"

Dennis Slamon was delighted to receive the news that he has been awarded the Sjöberg Prize for 2019.

"I was deeply honoured to receive such a prestigious award. The award money will be very helpful in pursuing our objectives, identifying new targets in addition to the ones we have already targeted. Currently, we are working on ovarian cancer, lung cancer and pancreatic cancer. The idea is to identify targets on cancer cells that are not present on normal cells, and then to approach this therapeutically in the hopes of developing more effective and less toxic therapies for cancer," says Dennis Slamon.

Both Dennis Slamon and Brian Druker share the belief that it is necessary to understand the reason why cancer spreads to be able to treat it. Brian Druker was very surprised when he was told that he had been awarded this year's Sjöberg Prize.

"It was a complete surprise to get the call and, when I read more about it, I felt extremely privileged to join the ranks of the prior recipients. Our research is continuing at a rapid pace, trying to identify new targets in leukaemia and bringing that knowledge into the clinic. The money from the Sjöberg prize will help us accelerate that progress," says Brian Druker.

The Laureates

Dennis J. Slamon, Professor at the University of California (UCLA), Los Angeles, USA. MD and PhD 1975 from the University of Chicago, USA. Born 1948 in New Castle, Pennsylvania, USA.

Dennis Slamon's battle to turn his discoveries into effective new pharmaceuticals has even inspired an American film for television, *Living Proof* starring Harry Connick Jr.

[Dennis Slamon, University of California](#)

Brian J. Druker, Professor at Oregon Health & Science University, Portland, Oregon, USA. MD 1981, from the University of California, San Diego, USA. Born 1955 in St Paul, Minnesota, USA.

[Brian Druker, Oregon Health & Science University](#)

The Sjöberg Prize

The prize is awarded by the Royal Swedish Academy of Sciences and is funded by the Sjöberg Foundation. The foundation was founded in 2016 by businessman Bengt Sjöberg, who donated two billion Swedish krona to promote scientific research that primarily focuses on cancer, health and the environment. The first prize was awarded in 2017.

[Read more about the Sjöberg Prize](#)

More information

At www.kva.se/sjobergprize2019 you can find a film that explains the research behind the prize.

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