

European Inventor Award 2013 - Pål Nyren (SMEs)

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Pyrosequencing is a DNA-sequencing technology invented and patented by Pål Nyren. The technology surpassed existing DNA-sequencing procedures in terms of speed, efficiency and cost. It has been instrumental in driving down the cost of DNA sequencing while greatly increasing its speed and volume.



HEURE	DESCRIPTION	DUREE
00:00:00	Cancer diagnosis: one half of all men and a third of all women will be affected*. Traditional treatment methods however, often do not produce the desired results. The reason for this is that the tumors are as diverse as the individuals who have them. *(Source: WHO)	00:00:14
00:00:14	Physicians have long dreamed of being able to treat cancer using custom treatments. For example they could replace diseased cells with healthy DNA material from a patient. This is a vision that may soon become reality.	00:00:13
00:00:27	This man has created a breakthrough technology that helps sequence the DNA in cells, even diseased cells, quickly and cheaply. This is Pål Nyren (pronounced pole) from Sweden.	00:00:12
00:00:39	IV Pål Nyren in Swedish: "Den her metode, som paa engelsk hedder pyrosequence, bygger paa at man læser den genetiske kode og gør den anvendelig for for mange andre maal, (formaal) og fremfor alt bruges til at analysere forskellige lidelser som kræft og andre sygdomme." Translation: "This method. which is referred to as	00:00:15

	<p>method, which is referred to as pyrosequencing means that you decipher the genetic code and then use it to solve various problems. The method is mainly used to analyze various diseases, such as cancer."</p>	
00:00:54	<p>Before the invention of pyrosequencing decrypting the genetic code of a person took 13 years and cost around 100 million dollars.</p>	00:00:12
00:01:06	<p>Now thanks to Nyréns's idea, the process runs automatically. For just 8,000 dollars, the entire sequence of a cell can be read in just two months. Nyrén's quick and inexpensive DNA analysis now makes it possible for cancer researchers to develop therapies tailored to each individual patient.</p>	00:00:23
00:01:29	<p>The idea for how to quickly sequence DNA didn't come to Nyrén in the lab. Rather it came to him at night while riding a bicycle.</p>	00:00:08
00:01:37	<p>IV Pål Nyrén in Swedish:"Jeg fik ideen en sen aften i januar, da jeg cyklede hjem fra laboratoriet i Cambridge til den lille by Fullborn. Jeg var meget opstemt, ideen byggede paa at bruge lyssignalet fra lysfluen. Jeg ville berette til min frue og teste ideen, helt enkelt."Translation:"I got the idea one evening in January when I was riding a bike from the laboratory to Fullborn in Cambridge, a small town. I was very excited about this idea which was to use the firefly's light signals. I wanted to tell my wife about it and then test it right away."</p>	00:00:19

00:01:56	Here's how Nyrén's DNA decryption process works: Our genetic information is laid out like a ladder. To find out how it is arranged, Nyrén cut the ladder in half lengthwise and then put the two halves back together again rung by rung. The scientists then add the four base units and phosphorous to a container. One after the other, the apparatus samples through all the building blocks. When there's a hit, the phosphorous produces a flash.	00:00:33
00:02:29	A computer registers the light and records the appropriate block.	00:00:06
00:02:35	Nyrén's inventions to continue to decrypt the book of life thus to understand the language of diseased cells. His wife Maya was the first person he told about his idea.	00:00:14
00:02:49	IV Pål Nyrén in Swedish "Jeg var eksateret den aften, jeg kendte, at det her virkelig var en stor ide, jeg skyndte at berette det til min frue. Paa den anden side var jeg nervös, for jeg tænkte, Paal, maaske kommer en anden person för mig." Translation: "I was very excited on that evening when I realized the magnitude of this idea. I wanted to tell my wife it immediately. On the other hand, I was very nervous because I thought, maybe someone would beat me to it."	00:00:15
00:03:04	Today pyrosequencing is one of the most used methods in genetic engineering. It is an invention that can help save lives!	00:00:09

00:03:13	IV Pål Nyrén in Swedish"Det er specielt roligt, man udvikler nogen ting ,som man tror, at nogen kann anvende. Og specielt for at hjælpe andere mennesker og for forskere."Translation:"It is really great to develop something and believe that it has a real use. It is really special to be able to help people or others in their research."	00:00:12
00:03:25	For this "brilliant idea" Pål Nyrén has now received a nomination for the European Inventor Award from the European Patent Office in the category "small and medium-sized enterprises". We will see if he can take home the "Technology Oscar" at the awards ceremony on 28th May in Amsterdam.	00:00:20
00:03:45	End	00:00:00