Carol Greider (1961)

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In 2009, Carol Greider shared the Nobel Prize in Medicine with Elizabeth Blackburn and Jack Szostak for the discovery of telomerase, an enzyme responsible for maintaining telomeres. These are regions of DNA found at the end of chromosomes (from the Greek telos, end, and meros, part). As a normal cell divides the telomeres disappear, causing a progressive functional decline and, ultimately, death. This process explains why normal cells can die. However, tumor cells can maintain their telomere size thanks to the extra production of telomerase. 30 years ago this process was unknown, and only a few scientists worked in this field. Those few included Elizabeth Blackburn and her pupil, Carol Greider.

Carolyn Widney Greider was born in San Diego, California, on April 15th, 1961. Daughter of a physicist and a PhD in Botany, she is the youngest of two kids. Her childhood was deeply marked by her mother’s death, when she was six. She finished high school with bad marks due to the dyslexia she was suffering, but she was accepted by the University of California at Santa Barbara, where she graduated in Biology in 1983. In March 1984, she began her doctoral studies at UC Berkeley, where she met Elizabeth Blackburn, who was investigating at the time the elongation of telomeres. “I was intrigued by this matter, Carol recalls in an autobiography, so I applied for working in Elisabeth’s laboratory.” Blackburn remembers her student as a person of great rigor and entrepreneurship, two basic qualities to become a leading researcher and not letting herself being “intimidated” by the project undertaken (4). In addition, Carol completed her knowledge of Biochemistry with DNA cloning techniques and other skills which were necessary for her work (2). Christmas Day, in 1984, was the key date. At only 23 years old, while other kids were having fun, Greider identified in the laboratory the enzyme telomerase, responsible for protecting the integrity of chromosomes (1). This discovery helped launching a research field which attracted the attention of longevity researchers, cancer biologists, and the biotechnological industry (3).

In 1993 she married the science writer Nathaniel Comfort, with whom she has two children. Since 1997, she works in the Department of Molecular Biology and Genetics at Johns Hopkins University, where she is Professor and Director of the Department. “Having two kids and a full time job in the lab is a challenge, but having Charles and Gwendolyn is the best thing that has ever happened to me. My lab knows that I am a mom first, and the flexibility that academic science provides makes having a career and a family possible. I can go home when needed, or to a school play in the middle of the day, then come back and finish my work-day; or work from home on the computer. The main thing is to find the time to get things done, it is not the hours at work but the overall productivity that counts. Having flexibility takes a huge amount of pressure off” (5).

When in 2009 she was awarded with the Nobel Prize, her first reaction was of disbelief, turning later into satisfaction and pride. “One of the lessons I have learned in the different stages of my career is that science is not done alone. It is through talking with others and sharing that progress is made. (...) The new ideas quickly become part of the collective consciousness. This is how science moves forward and we generate new knowledge”.

References