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« Je Science donc J'écris »

Portrait of Emmanuelle Charpentier

This is Emmanuelle Charpentier ! That name doesn't ring a bell. And yet it may well remain etched in the memory of proven or amateur scientists, people like you, who are reading this. This French researcher, whose field of preference is microbiology previously studied at UPMC (our campus !). In 2012 she discovered the RNA tracking system, a key step in the development of the CRISPR/Cas9 technique, which has become one of the most efficient genome editing tools ever. To find out more about what lies behind this "barbaric" name, we invite you to read this article dedicated to it in the December review!

If you are interested in her story, take a few minutes to discover her portrait and what brought her to this discovery.

After studying biochemistry, microbiology and genetics at the Université Pierre et Marie Curie (UPMC), she continued her studies in doctoral school at the Institut Pasteur, in France, on the theme of microbiology and infectious diseases, where she acquired the certainty that "fundamental science is at the heart of everything". e she acquired the certainty that "fundamental science is at the heart of everything". Later, she decided to pursue her studies in the United States as part of a post-doctoral fellowship, where she continued her research around her favourite subject: bacteria. Then, she decided to return to Europe to lead her own research group at the Max F. Perutz laboratory at the University of Vienna in Austria in the field of microbiology. Afterwards, she was appointed Associate Professor at the University of

of Umeå in Sweden where she headed a research team specializing in medical microbiology.

In 2012, she discovered with Jennifer Doudna (an American biochemist) a surprising immunity mechanism in Streptococcus pyogenes. This discovery will lead, a year later, to the development of CRISPR/Cas9 as a genome editing tool.

If she says she made this discovery by "chance", quoting Louis Pasteur's famous aphorism: "In the field of observation, chance favours only prepared minds.", she asserts however that her curiosity and her choices of studies certainly predestined her to this major breakthrough !

Since then, she founded CRISPR Therapeutics and ERS Genomics: two companies that develop CRISPR technology for biotechnology and biomedical applications. And recently, heads the Max Planck Institute for Infectious Biology in Berlin, whose current research focuses on the fundamental mechanisms for regulating the processes of infection and immunity in human pathogens, particularly gram-positive bacteria such as streptococci. The aim of this research is to develop new anti-infective treatments, but also to develop new genetic technologies such as CRISPR/Cas9. She was granted more than 70 awards, including the prestigious Kavli Prize, which is awarded every two years to researchers in three scientific fields : neuroscience, astrophysics and nanosciences. It is in this last category that Emmanuelle Charpentier and her team were distinguished in 2018. In 2017, she also became a member of the Académie des Sciences, a prestigious and small circle of emeritus scientists. Finally, the famous magazine Vanity Fair listed her in the "50 most influential frenchies in the world in 2015 and in 2016". She received the L'Oréal - UNESCO Prize for Women and Science.
Her popularity and success didn't intoxicate her !

During her speech at the Académie des Sciences, she highlights the knowledge that her education brought to her in France and highlights the invaluable opportunity represented by having worked with many scientists, about whom they claim to be "a source of inspiration". She then recalled the difficulty of working in the field of research, where experiments carried out do not often show conclusive results. It takes years before the result is visible and that is why we must persevere and never give up! Today, with Jennifer Doudna, they are both being approached for a Nobel Prize. It is a great hope for scientific females !

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