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Irene Uchida

"Science is a rewarding and challenging career. Young people going into science must keep an open mind to all ideas in an effort to find every possible way to help people."

-Irene Uchida

"You are the spitting image of your mother". That was one of the things said to me a lot during my childhood. In those situations, I insisted that I looked like myself, which is only partly true. We inherit physical features as well as some personality traits from both of our parents. Chromosomes contain this hereditary information: They determine which sex we will be born with, which eye and hair colour we will have one day and how tall we will grow to be. However, they also predetermine inherited illnesses and diseases like Down syndrome. The very fact that such small parts of our DNA have such an astonishing impact on our health and our life leaves me utterly amazed. For this reason, I believe genetics to be really fascinating. Moreover, I am strongly convinced that this is a crucial area of science. I was therefore keen on finding out more about an impressive scientist in this field.

When thinking of great scientists or researchers people tend to think of Albert Einstein, Isaac Newton, Galileo Galilei, Leonardo Da Vinci or Nikola Tesla. Out of the 900 Nobel prizes that have been awarded over the last 115 years, only 48 were presented to women. Men's successes have been flaunted since the beginning of mankind, while women's achievements throughout history, which are equally important in my opinion, are just not appreciated as much. That was reason enough for me to call a woman before the curtain.

My admiration for scientists notwithstanding, I am well aware that science cuts both ways. On the one hand, scientists have discovered ways to improve the quality of our lives by fighting illnesses and misery, while on the other hand they have also developed ways to bring death and destruction, and to extinguish thousands of human lives within seconds. Do not get me wrong, the invention of nuclear or fusion bombs is incredible and they are suited to

the purpose they were invented for. Nevertheless, in my eyes creating weapons is just never as remarkable as helping people. Ayako Uchida, better known as Irene Uchida, was one of those remarkable scientists who made the world better and improved people's lives with her research. My interest in genetics, my admiration for Uchida's ground-breaking work in this field and my very personal relationship with the topic of Down syndrome were all factors in choosing to write about this remarkable woman.

Irene Uchida was a Canadian Down syndrome scientist and researcher. She was born in Vancouver in 1917 as the daughter of Japanese immigrants. Neither losing her best friend to a disease and her sister to an accident nor being held in an internment camp during World War II made her lose her will to help other people. During her studies at the University of Toronto one of Uchida's professors encouraged her to pursue a career in human genetics, a field in which she earned a PhD degree a few years later. This was when the foundation for her field of research was laid. After graduation she worked at the Sick Children Hospital in Toronto, which brought her into contact with children with Down syndrome. Her special interest was focused on detecting the reason for the extra chromosome the DNA of people with Down syndrome has. In addition, she researched other forms of trisomy, for example trisomy 18, and the likelihood of a child's being born with this condition. Later in her career, in an effort to find the cause of Down syndrome, she suggested radiation, in particular x-ray exposure of pregnant women, as a possible reason for the development of the birth defects. Conducting different studies, she was able to confirm this hypothesis.

As a result of her findings, x-rays on pregnant women are only performed nowadays if absolutely necessary, and expectant mothers are advised to avoid all kinds of radiation. What is more, Uchida's research offered the basis for further discoveries in the field of human genetics: Her work enabled the diagnosis of chromosomal irregularities in unborn babies, which gives parents-to-be the opportunity to prepare themselves for the birth and the life with a disabled child. However, prenatal diagnosis also gives them the option of choosing to abort the pregnancy, which can be listed as one downsides of her findings and has to be discussed controversially. While on the one hand it prevents parents from being over-challenged, this option denies children with such abnormalities the opportunity to live and their parents the chance to love and to be loved by their kids, as people with Down

syndrome are at least as affectionate and kind as those without chromosomal disabilities. Moreover, the option of prenatal diagnosis also puts a lot of pressure on the parents, as they might think that their offspring needs to be healthy and, in some ways, even perfect. But what is perfect?

In conclusion, a better understanding of the causes of Down syndrome helps to eliminate prejudices against disabled people, which is why I truly admire Irene Uchida and her research. Her spirit and mentality make me think about going into science one day too in order to improve people's lives.

Used resources

Wikipedia: https://en.wikipedia.org/wiki/Irene_Uchida called on 30.12.2017

Wikipedia: https://en.wikipedia.org/wiki/Down_syndrome called on 12.3.2018

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Library and Archives Canada: https://www.collectionscanada.gc.ca/women/030001-1414-e.html called on 3.1.2018

Science.ca: http://www.science.ca/scientists/scientistprofile.php?pID=21 called on 21.1.2018