

# Ontario Women: Vanguarders of Science

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## Irene Uchida, scientist

Irene Ayako Uchida (1917-2013) was a scientist who worked all over Canada - at hospitals, universities, and laboratories. She spent 15 years at the University of Toronto, three years at Oshawa General Hospital, and 22 at McMaster University in Hamilton. Her most famous scientific accomplishment was finding the specific problem in human's genes that causes Down Syndrome.

Doctor Uchida was born in Vancouver in 1917 to Issei parents; her father owned two bookstores. She played violin and piano and was given the nickname "Irene" by her piano teacher; she loved watching the Japanese-Canadian baseball team the Vancouver Asahi play. During her childhood, one of her sisters was diagnosed with tuberculosis. Their mother had travelled back to Japan with her sister to seek medical care, but the child died there.

When she graduated from high school, she decided to study English literature at the University of British Columbia; her aunt Chitose had been the first Japanese-Canadian to enrol at UBC. She joined the Japanese Canadian Citizens League and became active in lobbying for greater civil rights; she also wrote for the newspaper *The New Canadian*. In 1940, when she was 23, she went to Japan for the first time. She came back in late 1941, on the very last cross-Pacific ship - Pearl Harbour would be bombed by the Japanese a month later.

When she arrived back in Vancouver, she, her father, her brother, and his wife and children were sent to internment camps. Irene was made principal of a primary school in the camp, teaching 500 students. She converted her shack in the camp into a library for her students to use. Her father's two stores, their home, and their car were all confiscated by the government.

*She never harboured any bitterness. "What's the use?" she said in 1987. "Everything that comes to one is a new experience and you grow with different experiences, whether they're good or bad. There's no reason to worry or brood about it."*

- Hamilton Spectator, 2013

In 1944, they were released, and Irene's father decided to move to Japan where his wife and daughter had remained since 1940 - the Canadian government was offering a "repatriation program" that sent people of Japanese descent to Japan in exchange for prisoners of war. Irene headed to Toronto with some financial support from the United Church of Canada. Toronto, until about 1949, was closed to Japanese Canadians - the only exception was for students at the University of Toronto. To pay for the

rest of her undergraduate degree at the university, she worked as a seamstress in a factory, and as a dishwasher in a restaurant. She graduated in 1946. The professor that taught her introductory genetics encouraged her to stay in the field, and so she changed her plans from a masters in social work to a PhD in zoology, which she got in 1951.

*There were many obstacles to her progress in her education. One was the racism of the times. She confessed to me that some of her*



A Japanese work camp in Ontario in World War II.



*professors did not like her in their precious school and so tormented her with epithets that surprised and stung. Her determination and tenacity however drove her to graduate.*

- Terry Watada

Doctor Uchida worked at Toronto's Hospital for Sick Children from 1951 to 1959, where she studied twins to learn more about the genetic basis for heart disease. She was hired away to Winnipeg, where she founded Canada's first cytogenetics laboratory ("cytogenetics" means the study of how chromosomes affect the way cells grow and change). She stayed there from 1960 to 1969, when she traveled to London, England, for a contract as a "visiting scientist."

*She felt Toronto doctors gave up too soon on Down Syndrome children. All they advised was to put them into institutions and forget about them.*

- Terry Watada

She came back to Canada to start a cytogenetics laboratory at McMaster University in Hamilton, and stayed there for 22 years. While she was there, she focused on radiation. Her attention turned to Down Syndrome and she and her labmates would search out people across Ontario with a Down Syndrome diagnosis to take blood samples from them and their family members. Through this widespread effort, they were able to discover a number of new facts about Down Syndrome.

Before Doctor Uchida's research, many people believed that mothers caused Down Syndrome by becoming pregnant later in life - over 35, according to statistics at the time. Doctor Uchida was able to point out a number of causes and correct this mistaken assumption. French scientists had recently discovered that people with Down Syndrome have an extra chromosome. She looked into that finding, and discovered that women exposed to X-rays and other radiation could sometimes develop the genetic mutation that caused Down Syndrome in their children. She also discovered that men passed down the extra chromosome that causes Down Syndrome to their children in 25% of cases.

Doctor Uchida died in 2013 at the age of 96, passing away peacefully in a nursing home in Toronto. She never married or had kids. Throughout her career she published almost 100 scientific papers about aspects of her research.

Doctor Uchida has been given a number of honorary degrees, made an Officer of the Order of Canada, named a Woman of the Century for Manitoba, and given the Founders Award from the Canadian College of Medical Geneticists. In 1970, Prime Minister Pierre Trudeau named her to the Science Council of Canada and in 1975 she was selected as one of 25 outstanding Ontario women as part of its celebration for International Women's Year. She is remembered for "her feistiness, her sense of humour, her love of music, and her insistence on proper grammar."

*I miss her irascible and rascal nature. She was part of a coterie of Nisei who were hard to get to know, but once revealed the rewards were great. There were many characters, quirky and admirable.... And Irene Uchida always had a twinkle in her eye that told me to take her seriously but with a grain of salt and love in the heart. She was truly wonderful to behold.*

- Terry Watada

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