GREAT WOMEN in Biotechnology

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Founding Mothers

Ninkasi

Nothing like a goddess to set the bar high! Ninkasi (5500 BC) was the Sumerian goddess of beer. While the discovery is unlikely attributable to a single individual, historians agree that Mesopotamian women were the first to develop the key biotechnology of fermentation.

Xi Ling Shi

Chinese Empress Xi Ling Shi (2700-2640 BC) discovered that silkworm cocoons unravel into bright, resistant, and very long threads. Moreover, she turned this discovery into a biotech business - planting trees to raise the worms, inventing a loom, and then distributing the product to the world!

Trail Blazers

Lady Mary Montagu

Lady Mary Montagu of England (1689-1762) introduced smallpox inoculation to western medicine. While researching and writing "Letters from Turkey" (that era's version of a travel blog), she came across the practice. After immunizing her own children, she lobbied Princess Caroline of Wales to test the treatment on prisoners and vaccinate the royal family. She also published papers describing the procedure.

Gerty Cori

Part of the dynamic "Cori" duo, Gerty Cori (1896 -1957) won the 1947 Nobel Prize in Medicine for her work on carbohydrate metabolism. Born in Prague, she decided at age sixteen to become a doctor. And she did! Graduating from medical school in 1920, she worked at a children's hospital before coming to the U.S. After becoming a biochemistry professor, she studied insulin and sugar levels in humans. Cori was also known as an excellent mountain climber!

Genevieve D'Arconville

Genevieve D'Arconville of France (1720-1805), a skilled translator and illustrator, was also a scientist interested in botany, anatomy, and most of all putrefaction. She carried out over 300 decomposition experiments and published her results anonymously in 1766. A reputed insomniac, she also wrote histories, biographies, and novels.

Modern Leaders

Barbara McClintock

Barbara McClintock (1902-1992) was fascinated by the secret lives of corn chromosomes. As a Ph.D. student, she developed cytogenetic staining methods and demonstrated the process of genetic recombination. Things got "jumpy" when she discovered transposons - moving chromosomal regions that alter a cell's genotype and phenotype. While this discovery was met with initial skepticism, she continued to gather supporting evidence and was awarded the Nobel Prize for Medicine in 1983.

Kiran Mazumdar-Shaw

Kiran Mazumdar-Shaw (1953-) is a biotech entrepreneur and managing director of Biocon Limited. Kiran was born in India, moved to Australia to become a brewmaster, but returned to India in 1978 to run a small enzyme purification and discovery business. Today, this business is a biopharmaceutical powerhouse that promotes affordable innovation in medical treatments.

Photo courtesy the Science History Institute. Crop and color by EDVOTEK, Inc.

Ruth Benerito

Ruth Benerito (1916-2013) lived through America's Great Depression – but still managed to earn a BS, MS, and Ph.D. in Chemistry before becoming a researcher at the United States Department of Agriculture. (Along the way, she had a few odd jobs, including teaching Driver's Education, despite having never driven herself!) At the USDA, her team discovered chemical treatments that made cotton fibers wrinkle resistant – an innovation that saved the cotton industry and spared us from constant polyester!

Photo by Mary Jackson, courtesy the Lemelson-MIT Program. Crop and color by EDVOTEK, Inc.

Mary-Claire King

Mary Claire King (1946-) studies the role genetics and the environment play in HIV, lupus, deafness, and cancer. She has been a key figure in identifying the breast cancer gene BRCA1 and in mathematically demonstrating humans and chimpanzees share 99% of genes. In addition, King also promotes sequencing for humanitarian causes – traveling around the world to help identify individuals in mass graves and to reunite children who were adopted illegally.