

Dr A.H. Heineken Prize for Medicine 2006 awarded to Mary-Claire King

Amsterdam, 30 March 2006 - The Royal Netherlands Academy of Arts and Sciences has awarded the Dr A.H. Heineken Prize for Medicine 2006 (USD 150,000) to Professor Mary-Claire King, Departments of Medicine (Medical Genetics) and Genome Sciences, University of Washington, Seattle, Washington, United States, for

'proving the existence of the first hereditary breast cancer gene'

The subject

It took sixteen years before Mary-Claire King was able to demonstrate in 1990 that a single gene – it would later be called BRCA1 – was responsible for a large number of breast and ovarian cancer cases. At the time, virtually the entire medical science community believed that breast cancer was caused by a number of different genes interacting with different environmental factors, and that the search for a unique 'breast cancer gene' was a hopeless cause. By using her knowledge of mathematics, however, King developed a new research approach that would also prove to be successful in the study of other illnesses.

King had already changed our view of evolution when she demonstrated, for her doctorate, that the DNA of human beings and chimpanzees is 99% identical.

In the early 1990s, she discovered a technique for identifying individuals by genetic material taken from the teeth. Her work has made it possible for more than fifty children who 'disappeared' during the Argentinean military dictatorship to be reunited with their families. Professor King is currently researching the genetic basis of human deafness and HIV.

The prizewinner

Born in Chicago in 1946, Mary-Claire King was 19 when she took a degree in mathematics, graduating *cum laude*. She went on to pursue her doctorate in genetics and epidemiology at the University of California, Berkeley.

King was caught up in the social movements of the turbulent 1960s and has remained politically engaged. She left her doctoral studies for a year in order to perform environmental research for the consumer advocate and future presidential candidate Ralph Nader. King was in Chile when President Salvador Allende was assassinated and some of her colleagues and students were killed in the military coup. That is in part why, at the request of Argentina, she dedicated herself wholly to helping in the genetic identification of family members who had disappeared during the dictatorship. The technique she developed has now become a standard method of identifying human remains. King is currently investigating congenital deafness through an Israeli-Palestinian partner project that she set up, providing further confirmation of her social awareness.

Mary-Claire King has received many honorary doctorates, awards and other marks of distinction throughout her career. Her students praise her talent as a teacher. King remained at Berkeley until 1995, when she accepted an appointment as the American Cancer Society Research Professor at the University of Washington in Seattle.

Further reading

King, M.C., Wilson, A.C., Evolution at two levels in humans and chimpanzees, *Science* **188**: 107-116, 1975

Hall, J.M., Lee, M.K., Morrow, J., Newman, B., Anderson, L.A., Huey, B., King, M.C., Linkage of early-onset familial breast cancer to chromosome 17q21, *Science* **250**: 1684-1689, 1990

Ginther, C., Issel-Tarver, L., King, M.C., Identifying individuals by sequencing mitochondrial DNA from teeth, *Nature Genetics* **2**: 135-138, 1992

King, M.C., Marks, J.H., Mandell, J.B., New York Breast Cancer Study Group, Breast and ovarian cancer risks due to inherited mutations in BRCA1 and BRCA2, *Science* **302**: 643-646, 2003

About the prize

The Dr A.H. Heineken Prize for Medicine has been awarded since 1989. Previous prizewinners include Paul Lauterbur (one of the winners of the 2003 Nobel Prize for Medicine), David de Wied, Luc Montagnier, Eric Kandel (one of the winners of the 2000 Nobel Prize for Medicine), Barry Marshall (one of the winners of the 2005 Nobel Prize for Medicine) and Elizabeth Blackburn. For more background information, see <http://www.knaw.nl/heinekenprizes>.

The awards ceremony

The six Heineken Prizes for science, scholarship and art are presented every other year during a special session of the Royal Netherlands Academy of Arts and Sciences. This year the presentation will take place on Thursday 28 September at the Beurs van Berlage Building in Amsterdam.