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Svante Pääbo

Geneticist Svante Pääbo, PhD, to Receive the $500,000 Gruber Genetics Prize for Pioneering Research in Evolutionary Genetics

February 20, 2013, New Haven, CT - Svante Pääbo, PhD, director of the Department of Genetics at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany, is the recipient of the 2013 Genetics Prize of The Gruber Foundation. Pääbo is being honored with this prestigious international award for his pioneering research in the field of evolutionary genetics. He is considered the founder of molecular paleontology, the application of genetics to the study of prehistoric life.

The award will be presented to Pääbo on April 16 at the International Congress of Genetics conference in Singapore, where he will also deliver a lecture entitled "Archaic Genomics."

"Svante Pääbo's work shows basic science at its best. He was driven by an obvious passion to use DNA technology to unlock the past. He overcame seemingly insuperable technical obstacles. And he opened new vistas on a question we all care about, 'Where do we come from?' This is a wonderful award," said Maynard Olson, a member of the selection advisory board and 2007 laureate of the Gruber Genetics Prize.

Pääbo, 57, started experimenting with extracting DNA from ancient human remains in the early 1980s while completing his PhD program in molecular immunology at the University of Uppsala in Sweden, his native country. His first major finding—the demonstration that DNA was preserved in a 2,400-year-old mummy of an infant boy—was published as the cover story in Nature in 1985. In the ensuing two-and-a-half decades—at the University of California at Berkeley, the University of Munich and, since 1997, at the Max Planck Institute— Pääbo has played a leading role in developing the technology that has made it possible to isolate and sequence ancient DNA.

In 1997, Pääbo announced the successful sequencing of mitochondrial Neandertal DNA—a watershed in evolutionary genetics. In addition to proving that the DNA could be successfully extracted and

sequenced from a 40,000-year-old fossil, the sequencing showed that Neandertals and humans were distinctly different groups. Over the next decade, with the help of new gene-sequencing technology, Pääbo led efforts to sequence Neandertal's nuclear DNA. In 2010, he and his colleagues at the Max Planck Institute published the draft sequence of that genome, along with the startling finding that Neandertals have contributed up to 4 percent of the genetic material in modern humans. That same year, Pääbo and his team reported a second remarkable finding: A DNA analysis of a finger bone found in 2008 in a Siberian cave showed that it had belonged to a previously unknown form of hominins. It was the first time an extinct hominin group had been identified by genetic analysis alone.

Pääbo is also recognized as one of the world's leaders in human molecular evolution. He has, for example, played a critical role in defining the genetic relationship between humans and great ape populations. In addition, he has identified and studied the function of genes critically important in the evolution of the human species, such as FOXP2, which is associated with language development. In 2008, Pääbo reported that Neandertals had an identical FOXP2 gene, which raised the tantalizing possibility that they may have had some language capabilities.

"Pääbo's bold and exciting research has changed the way we understand human evolution and is providing insight into genes that are critical in the evolution of the human species," said Huda Zoghbi, chair of the Selection Advisory Board and the 2011 laureate of the Gruber Neuroscience Prize.

Additional Information

In addition to the cash award, the recipient will receive a gold laureate pin and a citation that reads:

The Gruber Foundation proudly presents the 2013 Genetics Prize to Svante Pääbo for pioneering the analysis of ancient DNA.

Prior to Dr. Pääbo's research, scientists vacillated between defeatist and overly exuberant views of the feasibility of sequencing DNA older than a few hundred years. Through painstaking development of new methods for handling, extracting DNA from, and sequencing ancient samples, Dr. Pääbo determined whole-genome sequences from fossils as old as 80,000 years.

The ancient DNAs analyzed included the genomes of Neandertal and Denisova, extinct relatives of contemporary humans. Dr. Pääbo's studies established that although early humans and these extinct relatives were contemporary inhabitants of Europe and Asia, they last shared a common ancestor hundreds of thousands of years ago.

Strikingly, Dr. Pääbo's research demonstrated that certain segments derived from Neandertal and Denisovan genomes are found in modern humans, providing evidence of early interbreeding of these populations. His studies were a technological tour de force, opened new windows into the distant past, and provided fundamental insights into our origins.

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Laureates of the Gruber Genetics Prize:

- **2012: Douglas C. Wallace,** for his groundbreaking contributions to mitochondrial genetics
- **2011: Ronald Davis,** for his pioneering development and application of recombinant-DNA techniques
- **2010: Gerald Fink,** whose work in yeast genetics advanced the field of molecular genetics
- **2009: Janet Davison Rowley,** for her seminal discoveries in molecular oncology
- **2008: Allan C. Spradling,** for his work on fly genomics
- **2007: Maynard V. Olson,** for his contributions to genome science
- **2006: Elizabeth H. Blackburn,** for her studies of telomeres and telomerase, and her science advocacy
- **2005: Robert H. Waterston,** for his pivotal role in the Human Genome Project
- **2004: Mary-Claire King,** for three major findings in modern genetics: the similarity of the human and chimpanzee genomes, finding a gene that predisposes to breast cancer, and forensic genetics.
- **2003: David Botstein,** a driving force in modern genetics who established the ground rules for human genetic mapping
- **2002: H. Robert Horvitz,** who defined genetic pathways responsible for programmed cell death
- **2001: Rudolf Jaenisch,** who created the first transgenic mouse to study human disease

The Prize recipients are chosen by the Genetics Selection Advisory Board. Its members are: **Bonnie Bassler,** Princeton University; **Martin Chalfie,** Columbia University; **Richard Lifton,** Yale School of Medicine; **Maynard Olson,** Genome Center, University of Washington; **Janet Davison Rowley,** University of Chicago; **Allan C. Spradling,** Carnegie Institution, Howard Hughes Medical Institute; and **Huda Zoghbi,** Baylor College of Medicine (Chair).

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By agreement made in the spring of 2011 The Gruber Foundation has now been established at Yale University.

The Gruber International Prize Program honors individuals in the fields of Cosmology, Genetics and Neuroscience, whose groundbreaking work provides new models that inspire and enable fundamental shifts in knowledge and culture. The Selection Advisory Boards choose individuals whose contributions in their respective fields advance our knowledge and potentially have a profound impact on our lives.

The Genetics Prize is presented to a leading scientist, or up to three, in recognition of groundbreaking contributions to any realm of genetics research.

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For more information on the Gruber Prizes, visit www.gruber.yale.edu, e-mail info@gruber.yale.edu or contact A. Sarah Hreha at +1 (203) 432-6231. By mail: The Gruber Foundation, Yale University, Office of Development, PO Box 2038, New Haven, CT 06521.
Media materials and additional background information on the Gruber Prizes can be found at our online newsroom: www.gruber.yale.edu/new-media