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New Forensic Method Aims to Predict What a Person Looks Like from DNA Sample

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Murray Brilliant

(PhysOrg.com) -- A University of Arizona research team recently completed a study looking at the DNA blueprint of almost 1,000 individuals and comparing that to detailed measurements of their hair, skin and eye color.

At The University of Arizona Steele Children's Research Center, a research team led by Murray Brilliant, the Lindholm Professor of Genetics, recently completed a study looking at the DNA blueprint of almost 1,000 individuals and comparing that to detailed measurements of their hair, skin and eye color.

The team developed a model that uses a relatively small number of specific changes in this DNA blueprint to account for the majority of the

variation in hair, skin and eye color.

The human genome consists of about 4 billion nucleotides - the individual letters of DNA that make up our genes. These genes are the blueprint of our human individuality and this blueprint is medically relevant, for example, in specifying an individual's inherent susceptibility to cancer.

However, the blueprint also encodes what we will look like (our hair, skin and eye color). No two individuals share the same blueprint, with the exception of identical siblings.

"This study demonstrates that even complex traits such as these can be understood at the genetic level, providing an approach to understanding health-related complex traits such as heart disease and diabetes," Brilliant said. "Moreover, this study has immediate application to forensic science, enabling law enforcement to predict what a person looks like from a DNA sample left at a crime scene."

The study will be published in an upcoming issue of the *Journal of Forensic Science*. Robert Valenzuela, a Sloan Foundation scholar, NSF IGERT genomics fellow and doctoral candidate in the Genetics Graduate Interdisciplinary Program, was first author. Brilliant was the corresponding author.

This study also included collaborators from the UA department of ecology and evolutionary biology, Pennsylvania State University College of Medicine, Fujita Health University School of Health Sciences and DNAPrint Genomics, Inc.

Provided by University of Arizona