hsc Center for Human Identification

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CHI RESEARCHER AWARDED BY USDOJ'S NATIONAL INSTITUTE OF JUSTICE (NIJ)

Project Focused on Improving Use of DNA Mixtures

(Fort Worth, TX) – The Center for Human Identification (CHI) at the UNT Health Science Center at Fort Worth has announced a recent NIJ funding award for CHI Associate Director Dr. Jianye Ge. Dr. Ge's research project, "*Enhanced mixture interpretation with macrohaplotypes based on long-read DNA sequencing*" involves the study and evaluation of methods used to identify individual DNA from samples which are a mixture of multiple people's DNA profiles.

Deconvoluting mixture samples is one of the most challenging problems confronting DNA forensic laboratories. Efforts have been made to provide solutions regarding mixture interpretation. The probabilistic interpretation of the Short Tandem Repeat (STR) profiles can increase the number of complex mixtures that can be analyzed. A portion of complex mixture profiles, particularly for mixtures with a high number of contributors, are still being deemed uninterpretable.

The latest long-read sequencing (LRS) technologies can overcome this limit in some samples and sequence larger DNA fragments. This will develop a novel set of markers, which combines hundreds of variants to offer extremely high discrimination power to better interpret mixtures.

"*With long-read sequencing technologies, more genetic information could be kept in the sequence data, which can substantially enhance the amount and quality of information available from a forensic DNA mixture,"* said Dr. Ge.

This award from the Office of Justice Programs' National Institute of Justice is part of a funding opportunity designed to enhance Research & Development in Forensic Science for Criminal Justice Purposes. Dr. Ge's project received a grant of $484,798.

The outcome of this effort will improve the capabilities to interpret DNA mixture evidence, particularly the complex mixtures with high numbers of contributors. More biological evidence will be analyzed successfully, which in turn will result in more and better investigative leads to help solve crimes.

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About CHI

The Center for Human Identification (CHI) is an accredited forensic laboratory on the campus of The University of North Texas Health Science Center at Fort Worth. With funding from the State of Texas and various Federal Government agencies, CHI supports forensic DNA testing, anthropological examinations, local CODIS operations, training, and various research and development initiatives. CHI also manages the Texas Missing Persons DNA Database.