AUTOSOMAL STR TYPING OF THE PUNTA GORDA SUBPOPULATION OF THE GARIFUNA USING THE POWERPLEX® FUSION 6C SYSTEM

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The Garifuna are an Afro-Caribbean population group who are descendants of escaped slaves that intermarried with the West African, Central African, Island Carib and Arawak people. One of the subpopulation groups of the Garifuna, known as the Punta Gorda, mainly reside on the island known as Roátan in the Caribbean.

Short Tandem Repeat (STR) DNA profiles are routinely used in forensic and paternity cases. The purpose of this study was to type at least 100 samples obtained from the Punta Gorda subpopulation with the PowerPlex® Fusion 6C System. This kit is a six-dye fluorescent amplification system allowing for the simultaneous detection of 27 loci. These include 23 autosomal STRs, three Y-STRs as well as the amelogenin locus.

This research was a collaborative effort between The Pennsylvania State University, Forensic Science Program, University Park, Pennsylvania and Laboratories of Biological Anthropology, University of Kansas, Lawrence Kansas. Other institutions involved in this project include the Facultad de Medicina, Universidad Católica de Honduras, Campus San Pedro y San Pablo, San Pedro Sula, Honduras, the Escuela de Anthropología, Universidad de Costa Rica, San Pedro, San José, Costa Rica and the Dirección de Medicina Forense, Ministerio Público de Honduras, Tegucigalpa M.D.C., Honduras.

Blood samples were collected by the institutions mentioned above, each organization following their Office of Research Protection (ORP) guidelines. Each blood sample was deposited on one of three types of paper substrates including FTA cards and non-FTA filter paper. All donors and samples were anonymized, and each bloodstain was labeled with a unique identifier. An approximate 1.2 mm cutting of each bloodstain was extracted using the EZ1 Advanced BioRobot and EZ1® DNA investigator kits from QIAGEN. After quantification, an appropriate amount of DNA was amplified with the PowerPlex® Fusion 6C System following the recommended protocol, using a Veriti® 96-Well Thermal Cycler from Applied Biosystems. DNA fragments were separated on a 3130xl Genetic Analyzer and analysis of the generated profiles was accomplished with GeneMarker® HID analysis software v 2.9 from SoftGenetics®.

Profiles from the bloodstains on various types of paper were generated successfully. Analyses of three other subpopulations of the Garifuna are also being performed using the PowerPlex® Fusion 6C amplification kit. The results from these four subpopulation groups will be compared and diversity of the populations will be determined.