

**Peter M. Schneider Fellowships of the International Society for Forensic Genetics (ISFG)
awarded in 2023**

Beneficiary:

Dr. Camila Tamburrini

Identification Genetics Laboratory (IdeGen, IDEAus-CONICET)

University of Buenos Aires (UBA), Argentina

Host Institution:

Rohlf's Lab, University of Oregon

Eugene, Oregon, United States

Responsible: Dr. Rori Rohlf's

Summary

The purpose of the visit was to familiarize myself with investigative genetic genealogy (IGG), focusing on the accuracy of analyzing various degrees of relatedness. This aligns with an ongoing project at the Rohlf's Lab, aiming to quantify the accuracy of genotyping low-quality DNA samples for genealogical searches, considering parameters such as the necessary number and proximity of SNPs. To address this goal, during the two-week visit, I first reviewed relevant literature. Additionally, I gained proficiency in a Python command-line-based software developed by the Rohlf's team. This software facilitates simulating pedigree structures and genomes, offering options for misassigned paternity and diverse broad family scenarios. Unlike existing tools (sim1000G, RarePedSim, SimRVSequences, and Msprime), this new software Rohlf's team is developing provides flexibility in shaping pedigrees over time, addressing the complexities of forensic cases.

Throughout the internship, I successfully simulated pedigree structures (refer to Figure 1) and genomes using Peruvian samples from the 1K Genomes Project. Validation involved confirming concordance between simulated relatedness pairs and the pedigree.

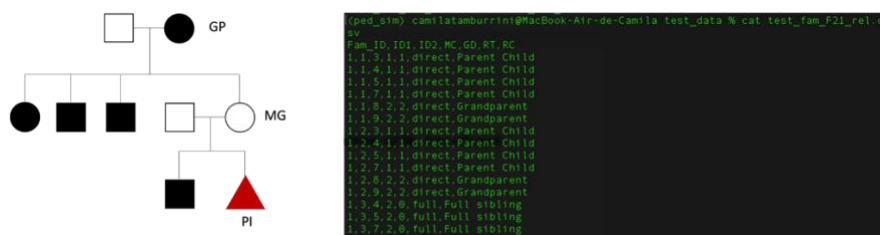


Figure 1: (Left) pedigree structure: GP: grandparents; MG: missing generation; PI: person of interest. (Right) Validation step: Fam_ID (Family ID); the other two columns are the individuals whose relationship is being tested; MC: meiotic distance; GD: the generation depth difference; RT: genetic relationship type.

The internship acquainted me with the forefront of forensic genetics research at Rohlf's Lab. The advances Rohlf's Lab is pursuing have a pivotal role in uncovering deep family connections, particularly relevant in post-dictatorship Argentina (1976-1983) and the imperative need to establish direct connections between grandparents and grandchildren who were forcefully separated. The Peter M. Schneider Fellowship has provided me with the opportunity to deepen my knowledge and promote cooperation between the Global North and Global South.