

Short term fellowship report – Dr. Carlo Robino

Thanks to the ISFG bursary I had the opportunity to visit the Forensic Genetics Unit - Institute of Forensic Sciences - University of Santiago de Compostela, Spain (FGU-IFS-USC), between 24th June to 1st July 2017.

During this period a series of studies were completed on population frequency data from Tigray and Amhara regional states (Northern-Central Ethiopia) for 46 AIM-Indel markers. DNA samples were previously collected and typed within a joint research project between the Universities of Mekelle (Ethiopia) and Turin (Italy).

The ability of the 46 AIM-indel set to differentiate Ethiopians from other relevant populations (Central-Southern Asia, Middle East, sub-Saharan Africa) was investigated through the use of the Snipper app suite, developed at FGU-IFS-USC, and a combination of softwares (STRUCTURE, STRUCTURE Harvester, CLUMPP).

It was seen that the compact set of 46 AIM-Indels is effective at capturing the genetic differences between Tigray/Amhara Ethiopians and other sub-Saharan African populations. Ancestry inference is also satisfactory in comparison to Middle East, when excluding Northern Africans from this population group, and Central-Southern Asia.

Since Tigray is the major ethnic group in Eritrea, the collected reference dataset will prove itself useful in the ongoing identification procedures of migrants who perished in the 18th April 2015 accident, when a vessel sunk in the Straits of Sicily causing over 800 deaths (including people from Syria, Bangladesh, West Africa, and about 350 Eritreans).

Preliminary results of the joint research project will be presented at the 27th ISFG Congress 2017 – Seoul, South Korea.

It was finally agreed to extend the study of the 46 AIM-Indel set to other Ethiopian populations (further collection of samples is expected in November 2017) and test the ability of a complementary 31-plex AIM-SNP panel to improve discrimination capacity between Tigray/Amhara Ethiopians and Northern African populations.