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Short Report - ISFG Short-Term Fellowship Award 2017

Following the decision of the ISFG Fellowship Review Board to award me with a fellowship, I'm submitting herewith the short report of the main outcome of my exchange visit to the Department of Forensic Medicine – Section of Forensic Genetics, at University of Copenhagen. This visit occurred between October 3 and November 1<sup>st</sup>, 2018, under the supervision of Dra. Vania Pereira - Assistant Professor.

Main Outcome of research visit:

1) Training

The main outcome of my visit was to acquire important practical experience in the use of “New Generation Sequencing” Techniques (NGS). During this visit I was able to follow the workflow on two different cutting-edge NGS platforms, such as Massive Parallel Sequencing (MPS) with Ion Chef™ and Ion S5™ (Thermo Fisher Scientific) as well as the MiSeq Sequencer (Illumina). It was possible to participate in all stages of the process, and to familiarize myself with the work with well trained experts. I was able to follow it from the DNA extraction (EZ1 Advanced XL, Qiagen), passing by the quantification of the DNA and the stages of preparation of the libraries, like barcodes binding, purification and elution, as well as the library quantification by qPCR and the preparing of the library pool. The steps of emulsion PCR, cleaning/initialization of the instruments and chip loading were carefully described.

During this period, I also had the opportunity of visiting the laboratories of Paternity and Crime Scene Sections, and to be informed about the routine of processing of the cases and the protocols used in the laboratory analyzes, as well as to observing biosafety procedures and good laboratory practices, which avoid cross-contamination.

2) Collaborative meetings

Meetings with the academics from the Section of Forensic Genetics and with Dra. Vania Pereira were extremely interesting as they provided insights in the field of my PhD thesis, since some of them also work in ancestry and population genetics. I could discuss with Dra. Vania Pereira about the next steps of the collaborative research already initiated with LDD-UERJ, involving the precision of ancestry estimates with Ancestry Informative Markers (AIMs).

In conclusion, I am sure that the ISFG Short-Term Fellowship Award was definitely a very important financial support that allowed me to remarkably enrich my research experience and contact the cutting-edge MPS, very helpful in resolving forensic DNA challenges. In the near future, we intend to implement the techniques learned in LDD, and follow up on research projects involving MPS.

Moreover, this grant was also an significant support for the ongoing collaboration projects and for developing new ideas of future collaborations between our institutions.