

Short report – exchange visit – ISFG short term fellowships

The current report summarizes the purpose and main outcome of the exchange visit of Dr. Ana Freire-Aradas (from the University of Santiago de Compostela, Spain) to the Malopolska Centre of Biotechnology on 21nd-28th Mai 2017 (Kraków, Poland), hosted by Prof. dr hab. Wojciec Branicki.

The main purpose of the visit was to strength cooperation between both universities in the field of predictive DNA analysis in forensics, especially regarding age estimation based on DNA methylation.

During the visit, Dr. Freire-Aradas took part of discussions about DNA methylation markers for forensic human age estimation. Several age prediction models have been reported to date and discussions aiming the most informative markers to be used in different tissues (e.g. blood, saliva, semen and human remains) took place. A final list of candidate genes for forensic age estimation was established and was proposed as initial reference for the recently launched European project VISAGE (kick-off meeting hold on 30th-31st Mai 2017 in Rotterdam) that aims to further study age, ancestry and externally visible characteristics prediction, for implementation in routine casework, with next generation technologies.

Additionally, access to different technologies was carried out. At the Malpolska Centre of Biotechnology, Dr. Freire-Aradas took part during a couple of days of an ongoing protocol for PGM sequencing. The steps of emulsion PCR, cleaning/initialization of the instrument and chip loading were carefully described.

On Wednesday 24th Mai, she could visit the Central Forensic Laboratory of the Police (Warsaw) and there she received training for running pyrosequencing using the PyroMarkQ48 for DNA methylation. Several samples that had been initially analyzed under the previous version PyroMarkQ24 were run for two genes and methylation levels were compared between both instruments proving reproducibility between them. Additional instruments for next generation technologies such as Illumina MiSeq, Ion S5 and Ion Chef were also described. From these, MiSeq was explained more in detail and results either for SNPs or STRs were further explored. Furthermore, discussions about potential forthcoming projects based on DNA methylation were discussed with the staff from the police in Warsaw.