

**Host Institution:** Institute of Legal Medicine, Innsbruck Medical University**Host Supervisor:** Prof. Walther Parson**Dates of Visit:** March 10–14, 2025

As part of the prestigious Peter M. Schneider ISFG Fellowship, I had the opportunity to undertake a short-term training visit at the Institute of Legal Medicine, Innsbruck Medical University, under the guidance of Prof. Walther Parson. The main objective of this visit was to expand my theoretical and practical expertise in biogeographic ancestry (BGA) testing, an increasingly important tool in both forensic and population genetics. My home institution in Bydgoszcz has a long-standing history of research in mtDNA, Y chromosome, and autosomal markers, and this visit served as a valuable continuation and enrichment of that work.

The training was intensive and highly practical. One of the main focuses of the visit was the COMBO tool, developed to combine three key genomic panels within a single massively parallel sequencing (MPS) run. These panels include basic VISAGE SNPs (for phenotype and ancestry prediction), the Y-SNP set, and full mitochondrial genome sequencing. During my visit, one fourth of over 100 Serbian population samples intended for analysis using the COMBO panel were prepared. Although the laboratory work proceeded smoothly, data analysis is still ongoing and will continue in collaboration with the host institution.

In addition to sample preparation and laboratory work, I gained hands-on experience with several essential forensic bioinformatics tools and software. These included IGV, Snippy, Structure, Y-Leaf, PhylloImp, and Visage algorithm, each of which plays a critical role in the analysis and interpretation of ancestry-informative genetic data. I also took part in setting up the entire MPS workflow, using IonChef and S5 Prime instruments. This experience was particularly valuable, as it allowed me to gain confidence in using IonTorrent high-throughput sequencing technology, from wet-lab preparation through to sequencing execution.

Beyond the technical aspects, the visit also provided opportunities to discuss the broader applications of BGA testing, including its role in forensic investigations and the challenges related to the interpretation of ancestry result. Exposure to case studies and real-world examples enriched my understanding of how BGA data can contribute to human identification and investigative leads.

I would like to express my sincere gratitude to **Prof. Walther Parson** for inviting me to his esteemed institute and for his generous support, friendly approach, and inspiring mentorship throughout the visit. I am equally thankful to **Christina Amory** and **Gabrielle Huber** for their invaluable assistance during my training and for creating a welcoming and supportive environment. Special thanks also go to **Antonia Heidegger** for the insightful and fruitful discussions that significantly enhanced my learning experience.

This fellowship has been a significant milestone in my professional development. The knowledge and skills acquired during this visit will directly benefit my future work in forensic genetics and will support the integration of advanced ancestry testing methods into routine casework at my home institution. I am extremely grateful to the ISFG for this opportunity and to the entire team in Innsbruck for their warm welcome, expertise, and dedication.

