MOLECULAR ESTIMATION OF TIME AND FORENSIC RELEVANCE

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Time is forensically relevant in various aspects and for some does molecular biology provide useful tools for estimation. In this talk, I will provide latest research results on three aspects of molecular timing for future forensic applications. First, I will show how the age of a crime scene stain i.e. the time of stain deposition can be estimated using circadian biomarkers, which eventually allows to test and establish the alibi of a known suspect and provides investigative information to trace unknown suspects not identifiable via forensic DNA-profiling. Second, I will demonstrate the value of different types of molecular biomarkers to estimate the age of a person from blood stains, which is forensically relevant in the context of Forensic DNA Phenotyping (FDP). FDP outcomes describe the appearance of unknown donors of crime scene stains, providing investigative information to trace unknown suspects. Age is important for FDP purposes because various appearance traits are depending on age; furthermore, age itself describes a person providing investigative information. Third, I will show how the age of a person visible in the face is written in the genes with relevance for FDP purposes. Moreover, unveiling the genetic basis of perceived facial age eventually allows explaining why some people look older and others younger for their age, which is of great interest much beyond the field of forensics.