

SHORT TERM SCIENTIFIC MISSION (STSM) REPORT FOR PUBLICATION ON WEBSITE

Visiting Researcher:
Assoc.Prof. Dr. Martina Marchetti-Deschmann (TU Wien, Vienna, Austria)

Host:
Prof. Dr. Ron Heeren (M4I, Maastricht, NL)

Duration of stay:
5 days

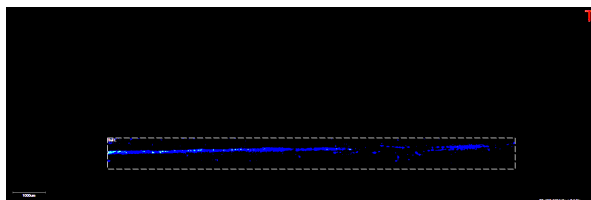
Human hair is one of the essential components that define appearance and is a useful source of samples for non-invasive monitoring of drugs, chemicals or biologicals. Actually, hair is a valuable source to determine biomarkers. The role of cortisol in stress response, the changing concentration in relation to age, sex, and circadian fluctuations in normal conditions and in acute or chronic stress were recently reported and this STSM was aiming at the development of a sample preparation strategy to detect cortisone, cortisole, 6- α -hydroxycortisol, 6- β -hydroxycortisol, tetrahydrocortisone and tetrahydrocortisol in beekeepers's hair.

Knowledge transfer to prepare hair samples for proper MALDI MSI analysis was provided by the host institution (M4I) to the visiting researcher (TU Wien).

For this hair was washed and fixed on a stainless steel holder and cut in half with a scalpel blade using a dedicated device developed at the hosting institution. Afterwards this, a derivatization reagent was applied on the hair to improve the desorption/ionization process. After matrix application the hair sample was measured on the Rapiflex (Bruker).

Although bee keepers have high stress levels and therefore rather high cortisol levels, the absolute amount per hair is extremely low. During this 5-days STSM the metabolites under investigation could hardly be observed. Further investigations are necessary at the guests home institution.

Yet this visit can be considered successful because basic knowledge about sample handling and preparation was transferred and further studies in Vienna will be feasible.



Distribution of m/z 285 in a 38 a old, male beekeeper hair (bee keeper for 1 year).