PTR-TOF-MS a new tool for volatilome investigation of autoimmune diseases

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A publication issued by the World Health Organization (WHO) in 2006 pointed out that: autoimmune diseases are multifactorial. Both intrinsic factors (e.g. genetics, hormones, age) and environmental factors (e.g. infections, diet, drugs, and environmental chemicals) may be responsible for them. Bacterial, viral and yeast infections are associated with many autoimmune diseases as well as chronic fatigue syndrome. When considering these biological ranges of selected volatile organic compounds (VOCs), personal factors such as race, age, gender, weight, food consumption, medication, illicit drugs, and even profession/class have to be taken into account for autoimmune diseases. Advances in multiplexed assay technology at the gene, protein, and cellular level have enabled the identification of potential biomarkers by PTR-TOF-MS. Analysis of VOCs or volatilome have been investigated from human exhaled breath. New tool PTR-TOF-MS provide deep insight into the status of various biochemical processes in the human body. Selected VOCs have been considered as potential biomarkers of immune-pathophysiological processes related to autoimmune diseases. PTR-TOF-MS of breathe VOCs analysis is noninvasive and fast biomonitoring with potential for the early detection of autoimmune diseases like rheumatoid arthritis, lupus and sjorgren´s syndrome. Typical scan and MID spectrums for an on-line real-time breath sampling of selected protonated ions related m/z were monitored. This poster gives an overview of the major VOCs measured in human exhaled breath, possible biochemical pathways of breath VOCs generation, diagnostic importance of their analysis, and analytical techniques used in the breath test.

Speaker Biography

Julia Ricanyova has completed her PhD at the age of 27 years from Nicolaus Copernicus University in Poland and P J Safarik University in Slovakia. She is the researcher of Chem MS Labs, Swiss. She has just 8 publications that have been cited over 100 times, attended more than 30 conferences, and her publication H-index is 5.

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