Exhaled breath analysis

Propositions

Belonging to the thesis

Exhaled breath analysis: the road towards its clinical implementation

Georgios Stavropoulos

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1. The exhaled breath analysis research field has lately seen an increased scientific interest and a great deal of technological developments; however, implementation of exhaled breath analysis in the clinics is far from being applied (*this thesis*).
2. The analysis of exhaled breath data presents a unique challenge in terms of data processing and analysis; it requires the development of sophisticated algorithms and statistical models to interpret the complex and heterogeneous nature of volatile organic compounds (VOCs) (*this thesis*).
3. Supervised and unsupervised statistical modelling is a powerful tool to successfully conducting exhaled breath analysis; yet, it cannot correct for improper sampling and measuring (*this thesis*).
4. The metabolic function of the liver and the excretion of the metabolized compounds in the bloodstream make for the perfect application for exhaled breath analysis; yet, the current approach of performing exhaled breath analysis for liver impairment might need to shift (*this thesis*).
5. Successfully conducting and applying volatile organic compound (VOC) analysis would benefit not only gastrointestinal research but other medical fields as well; healthcare cost reduction could significantly improve (*impact of the thesis*).
6. The “-omics” field has had a significant impact on many areas of biology and medicine; it remains to be seen whether “volatile-omics" could be added to the “-omics” field, and if so, what impact it could make.
7. Detecting diseases at an early stage can prolong survival, and endogenously produced VOCs are probably non-detectable at early disease stages; exogenous VOC (EVOC) analysis might be an attractive alternative.
8. Lack of standardization frameworks in terms of clinical design and lack of consensus in data handling and statistical tool availability and use represent common bottlenecks in various fields other than exhaled breath analysis as well.
9. Declare the past, diagnose the present, foretell the future.