

## **Lung function**

### **Human Volabolome: the physiological effect of 4,16-androstadien-3-one (AND) administration on exhaled VOCs**

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Human Volabolome study all volatile compounds emitted by human body such as metabolites, catabolites, stress molecules, odors, pheromones etc.; and its potential role as biomarker. It is a recent frontier of physiological investigations that point out body emission in healthy normal conditions vs. pathological, further in aging and under a given stimulation, including emotion, stress and pain. Here we investigate the effect of 4,16-androstadien-3-one (AND), a putative pheromone, on volatile organic compounds (VOCs) emission.

On ten male healthy volunteers (age 21 ±3) were recorded VOCs emission and breath signal in basal relaxed condition in a well aerated VOC free room at 23°C, under AND administration and in recovery post stimulation period. The recording system used was an iAQ-2000 equipped with a metal oxide semiconductor (MOS) having a sensing range of 450-2000ppm CO<sup>2</sup> equivalents.

Our experiment provides the evidence of a physiological effect of AND on VOCs emission changes. We find AND administration significantly affect VOCs emission MANOVA  $F_{(2,86)}=167.7$ ; a post-hoc series of one way ANOVA return a significant differences between AND administration vs.basal VOCs emission,  $F_{(1,59)}=829.8$ , and vs. recovery  $F_{(1,59)}=237.1$ . AND exposure, which is a natural component of human chemical communication, affect the exhaled VOCs.