European Respiratory Society
Annual Congress 2013

Abstract Group: 5.2. Monitoring Airway Disease
Keyword 1: Biomarkers **Keyword 2:** Asthma - diagnosis **Keyword 3:** COPD - diagnosis

Title: Metabolomic analysis of exhaled breath condensate in patients with asthma and COPD

Paolo 23487 Montuschi pmontuschi@rm.unicatt.it MD [1], Debora 23488 Paris dparis@icb.cnr.it [2], Dominique 23489 Melck dominique.melck@icb.cnr.it [2], Salvatore 23490 Valente svalente@rm.unicatt.it MD [3], Nadia 23491 Mores nmores@rm.unicatt.it MD [2], Andrea 23492 Trové andreatrove@yahoo.it MD [4], Chiara 23494 Mondino chiwind@libero.it MD [5], Leonello 23495 Fuso leofuso@rm.unicatt.it MD [3], Giuseppe 23497 Santini santinigiuseppe@libero.it [2], Francesco 23496 Macagno francesco.macagno@rm.unicatt.it MD [3], Matteo 23499 Sofia matsouni@libero.it MD [6] and Andrea 23500 Motta andrea.motta@icb.cnr.it [2]. [1] Pharmacology, Catholic University of the Sacred Heart, Rome, Italy ; [2] Biomolecular Chemistry, Italian National Research Council, Pozzuoli (Naples), Italy ; [3] Internal Medicine and Geriatrics, Catholic University of the Sacred Heart, Rome, Italy ; [4] Medicine, Ospedale San Carlo Di Nancy, IDI, Rome, Italy ; [5] Immunodermatology, Istituto Dermopatico Dell'Immacolata, IDI, Rome, Italy and [6] Repsiratory Medicine, University Federico II, Naples, Italy .

Body: We studied the discriminating capacity of NMR spectroscopy-based metabolomics of exhaled breath condensate (EBC) in asthma and COPD patients, who were either steroid-naive or treated with inhaled corticosteroids (ICS) [fluticasone (500-1000 µg/day) for at least 2 months], and healthy subjects. Twenty-seven steroid-naive COPD patients (21/6, males/females, age 67±2 years, mean±SEM, FEV_1 68±2.9% predicted value), 20 COPD patients on ICS (16/4, males/females, age 70±2 years, FEV_1 73±4.2% predicyed value), 21 steroid-naive asthmatics (16/5, males/females, age 32±3.9 years, FEV_1 99±4.9% predicted value), 19 asthmatics on ICS (14/5, males/females, age 31±4.0 years, FEV_1 85±5.0% predicted value), and 15 healthy subjects (8/7, males/females, age 28±1 years, FEV_1 116±2.6% predicted value) were included in a cross-sectional study. Asthma and healthy subjects were nonsmokers, COPD patients were exsmokers. EBC was collected after 20 min of tidal breathing (Ecoscreen, Jaeger, Hoechberg, Germany). ^{1}H-NMR spectra (Bruker Avance spectrometer) were data reduced to buckets (AMIX 3.6 package, Bruker Biospin, Rheinstetten, Germany) and normalized to total spectral area. Good reproducibility and no salivary contamination was previously reported (Montuschi P et al, Thorax, 2012). PLS-DA showed all study groups were separated (R^2=0.79, Q^2=0.80), suggesting an effect of ICS on EBC metabolites which has to be investigated in prospective controlled studies.