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## Urinary metabolomics profile of Greek Asthmatic school-children

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**Introduction:** In clinical practice, biomarkers can provide complementary information to conventional pulmonary tests, symptoms, spirometry, exhaled nitric oxide, PC20 methacholine and histamine. They are useful in establishing diagnosis, monitoring of the disease progression and in response to treatment. The development of non-invasive sampling methods and detection techniques for the identification of components involved in airway inflammation including the determination of biomarkers would greatly contribute to our current insight in airway inflammation associated with various asthma phenotypes as well as to customize individually-targeted therapies. In children reliable non-invasive biomarkers would be valuable.

We applied metabolomic analysis to study the association between urinary organic acid concentrations and pulmonary function in 72 Caucasian children (5-12 years) with asthma determined by gas chromatography and mass.

### Methods:

**Study design:** Dietary intervention study

**Recruited:** 72 children (54% Male; Mean age  $8 \pm 2$  y.o) from Nov 1<sup>st</sup>- Dec 31<sup>st</sup>, 2016.

**Venue:** Pediatric asthma clinic, Athens, Greece

**Inclusion criteria:** Doctor-diagnosed 'mild asthma'

**Pulmonary function:** Spirometry (FEV<sub>1</sub>, FVC, FEV<sub>1</sub>/FVC, PEF, FEF<sub>25-75%</sub>)

**Bronchial inflammation:** exhaled Nitric Oxide (eNO)

**Asthma control:** Asthma Control Questionnaire

**Urinary Organic Acid (OA) Profile:** GC-MS

**Time-point:** Baseline

### Results:

- 34 unique urinary organic acids identified by targeted metabolomics
- 8 significant correlations found between urinary OA and spirometry, eNO and ACQ scores ( $p < 0.05$ )

Difference in lactic acid concentration between boys and girls ( $5.82 \pm 6.48$  vs  $6.27 \pm 3.45$  mmol/mol Crea,  $p=0.03$ )

### Biography

Maria Papamichael is a Registered Dietician/Sports Nutritionist who has dedicated her life in educating people the importance of good nutrition and exercise in the prevention and management of disease as well as in improving health and well-being. Being an asthma sufferer since childhood, has motivated her to undertake a PhD research project at La Trobe University (Australia) to investigate the prophylactic potential of a Mediterranean diet enriched with fatty fish in the management of asthma in children.

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