

### O3 OMS1

## EICOSANOIDS AND ISOEICOSANOIDS ANALYSIS IN DRIED BLOOD SPOTS AND ORAL FLUID SAMPLES: A FASCINATING BIOANALYTICAL CHALLENGE

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Eicosanoids and isoeicosanoids are important signalling molecules derived respectively from the enzymatic and non-enzymatic oxidation of polyunsaturated fatty acids (PUFAs) [1]. The production of these lipid mediators is considerably increased during inflammation and oxidative stress, which play a key role in the pathogenesis and pathophysiology of a great number of diseases, such as neurological disorders, diabetes, renal dysfunction and cardiovascular diseases [2]. The analysis of these metabolites in minimally invasive biological specimens, e.g. oral fluid and dried blood spots (DBSs), can be extremely useful in elucidating their biological activity and potential biomarker role in the clinical setting. Their quantification represents a very challenging task due to the very low concentration levels (ppts range) and the tiny amount of sample available in the case of DBSs [3].

This work illustrates innovative procedures that combine micro-extraction by packed sorbent technique with ultra-high performance liquid chromatography coupled to electrospray ionization-tandem mass spectrometry for the determination of eicosanoids and isoeicosanoids in DBSs and oral fluid. The proposed analytical methods were fully validated and showed satisfactory precision ( $RSD \leq 10\%$ ), recovery (90-110 %) and LODs in the range of 10-100 pg mL<sup>-1</sup>. The straightforward application of the present methods for both the monitoring of preterm newborns suffering from Patent Ductus Arteriosus and Heart Failure patients is widely displayed, highlighting the importance of eicosanoids and isoeicosanoids in leading disease progression and responsiveness to the therapy.

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### References

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