

Special Issue on Modern Clinical Metabolomics for Epigenetic Events and Newborn Health Call for Papers

The quantitative analysis of metabolic spectra and metabolomics in biological systems can provide researchers a detailed functional view at a cellular level and also at an organizational level for tissues and organ systems. Metabolomics represents an important opportunity for investigation, especially for the fetus and newborns, under both normal and pathological conditions. Metabolomics technologies have the potential to measure a wide spectrum of metabolites with the possibility to obtain a picture of the consequences of young individuals' interactions with the external environment. Recent technological advances have made possible the application of metabolomics to acquire information about very delicate living "systems" like the mother-fetal "system" and the neonate-preterm "system." Further motivation for the development of metabolomics in neonatology is the strong relationship between adult health and the health history of the fetal and neonatal period. During fetal development, there are critical periods during which a damaging event may cause permanent and irreversible structural or functional alterations that are manifested in adulthood. Developing the theory proposed by Barker in the 1990's, it was possible to document that low weight at birth is associated with certain adult diseases, like hypertension, cardiovascular diseases, diabetes, obesity, and metabolic syndrome.

Thus, it is important for clinical researchers in neonatology to acquire an updated biological picture for neonatology from metabolomics. We encourage manuscripts reporting relevance of modern metabolomics application for improved prognosis, monitoring of therapy, or delineating the characteristics of fetal-neonatal health. Reviews summarizing the results of clinical trials using metabolomics measurements to predict therapeutic responses are welcome. Papers dealing with criteria for optimal neonatal outcome detection methods for blood and urine samples that could lead to improvement of clinical practice guidelines would be also welcome (specificity, sensitivity, reproducibility, robustness, objective readout, potential for automated analysis, characterization of subpopulation, and proven clinical guidance). Potential topics include, but are not limited to:

- Metabolomics and epigenetic events of interest in neonatology
- Metabolomics description of cardiovascular and respiratory systems diseases in neonatology
- Metabolomics description of brain disease in neonatology
- Metabolomics description of kidney disease in neonatology
- Modern clinical metabolomics: New methods and instrumentation for biomarkers research with metabolomics applied to neonatology

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Manuscript Due	Friday, 14 March 2014
First Round of Reviews	Friday, 6 June 2014
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