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Section: Cellular Analysis – subsection Poster presentation

Title: Exfoliated epithelial cells: a source of biological information in preterm infants.

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Abstract:

Context: Exfoliated epithelial cells can be isolated from several body fluids (i.e., breast milk, urines, and digestive fluids) as a cellular mixture (senescent, apoptotic, proliferative, or quiescent cells). By quantifying the degree of exfoliation, i.e. by assessing the loss of epithelial cells or of their specific molecular compounds, it is possible to evaluate pharmacological or nutritional stress in clinical trials as well as during epidemiological survey.

Material & Methods: Written informed consents were obtained from both parents (or guardians) to collect gastric fluid aspirates or stools from preterm infants. We have optimized a procedure to isolate epithelial cells from gastric fluid aspirates or stools of preterm infants and designed methods to characterize exfoliated epithelial cells.

Results: We have used two methods to measure relevant biological information from exfoliated epithelial cells. The first is based on immunophenotyping by confocal imaging of gastric cells isolated from gastric fluids aspirates (in order to evaluate the number of parietal cells, the possibility to detect neuroendocrine cells or the occurrence of stem cell biomarkers). The second proposes to recover all eucaryote transcripts to perform qPCR analysis on cellular preparation recovered from stools.

Perspectives: We intend to design a system allowing the co-detection of messenger RNA and microRNA to evaluate the infant's physiological state.

Key words: Infant, Exfoliation, Epithelium, Confocal imaging, qPCR, Gut, Stomach, Stem cell