

## **NON-INVASIVE URINE BIOMARKERS OF ACUTE KIDNEY INJURY (AKI) IN PREMATURE INFANTS**

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Multiple biomarkers of AKI have been are being explored in several critically ill pediatric and adult populations. Because of ongoing nephrogenesis, baseline biomarkers values may be different premature infants depending on developmental stage. The purpose of this project is to identify non-invasive biomarkers of AKI in this population:

*Aim 1:* Baseline biomarker values will be explored in 74 premature infants during the first week of life. Infants will be divided into 4 ordinal categories based on birthweight (500-750; 750-1000; 1001-1250 and 1251-1500g). Candidate urine biomarkers of AKI include interleukin 18, NGAL, KIM-1, MMP-9, osteopontin, NAG and cystatin C

*Aim 2:* Candidate biomarkers (those which do not differ substantially between birthweight categories will be tested. Daily screening of infants for potential AKI events (sepsis, necrotizing enterocolitis, shock, requirement of blood pressure support, cardiopulmonary resuscitation, use of imaging contrast). Serum and urine is collected on the day of potential event and on the subsequent 3 days. 25 infants who develop AKI (rise in serum creatinine > 0.5 mg/dl) will be compared to 25 with similar events but no AKI.

Testing urinary non-invasive biomarkers of AKI in premature infants is underway.