TITLE: BIOMARKER IDENTIFICATION FOR COVID-19 RISK STRATIFICATION IN MATERNAL FETAL HEALTH

INVESTIGATORS

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ABSTRACT

Limited information exists on maternal/fetal health and COVID-19 transmission in pregnancy, although reports suggesting vertical (i.e. maternal to fetal) transmission are starting to surface. These observations are relevant to the apparent limited COVID-19 morbidity in infancy and early childhood*, further suggesting that host immunological differences are stratified by age.* Host factors that predispose individuals to acquire or to develop severe COVID-19 disease remain largely unestablished, and are a major source of scientific interest and research strategy designed to moderate disease outcomes. In this application, we build on our ongoing infrastructure to systematically (1) delineate rates of vertical (maternal/fetal) transmission and/or neonatal responses in pregnancy, (2) identify prognostic platelet (or cytokine) biomarkers for risk stratification, and (3) define (age-relevant) mechanistic insights into host adaptive responses that may influence outcomes. We will address the **hypotheses that (1) COVID-19 biomarkers in adults at risk (mothers) will be distinct from those of low-risk newborns; (2) platelet biomarker subsets will be sub stratified by a restricted profile of cytokines**. The investigators have 17 years of collaboration, 5 previous/ongoing NIH grants, and >15 high-profile publications in the field of platelet genetic studies relevant to diagnostics and prognostication. Our unique infrastructure (concomitant evaluation of maternal and cord blood) serves as a rich resource for isolation and analysis of cellular subsets relevant to maternal/neonatal COVID-19 pathobiology.