Does maternal schistosomiasis affect the humoral and cellular vaccine responses of infants? Deborah Blobl, Taryn McLaughlin, Cheryl Day, W. Evan Secor, Govert van Dam, Paul Corsjtens, Heather B. Jackson, Janet Stewart, Saad B. Omer and Lisa Cranmer

Eunomy University; United States Centers for Disease Control and Prevention (CDC); Leiden University Medical Centre; University of Washington

OBJECTIVES/SPECIFIC AIMS: The aims of this study are 2-fold: (1) to determine if maternal schistosomiasis affects maternal immunity to tetanus and/or transplacental transfer of antistreptolysin-O (TT) immunoglobulin G (IgG) and their drug-related side effects, and (2) determine if maternal schistosomiasis on infant BCG vaccine immunogenicity. METHODS/STUDY POPULATION: The study will utilize blood samples from a historic cohort of 100 mother-infant pairs from Kisumu, Kenya, a schistosomiasis-endemic area. For the first aim, we will evaluate maternal schistosomal circulating anodic antigen, which has improved sensitivity and specificity to detect active schistosomiasis from serum, and antisoluble egg antigen IgG positivity compared with quantitative maternal anti-TT IgG at delivery and anti-TT IgG cord blood to maternal blood ratio (cord:maternal ratio). For the second aim, we will evaluate association between maternal schistosomiasis as detected by circulating anodic antigen and antisoluble egg antigen IgG at delivery and infant BCG-specific Th1-cytokine positive CD4+ cells at 10 weeks following BCG vaccination at birth. RESULTS/ANTICIPATED RESULTS: We hypothesize that active maternal schistosomiasis will be associated with decreased maternal anti-TT IgG and reduced efficiency of transplacental transfer, as measured by infant cord blood to maternal blood ratio of anti-TT IgG. We also expect that maternal schistosomiasis will be associated with increased infant immunogenicity to BCG vaccine. DISCUSSION/SIGNIFICANCE OF IMPACT: This pioneering study on infant vaccine immunity using laboratory methodology not previously applied. Understanding infant immunity in the setting of maternal schistosomiasis will inform vaccination strategies and tailor vaccine development in schistosome-endemic areas such as Kenya, where neither TB nor neonatal tetanus have been eradicated. Additionally, our results will inform public health policies to consider integration of antischistosomal agents in antenatal care.

Drug development core facilitates institutional collaboration and translational science innovation

Gene Morse, Igor Puzanov, Andrei Gudkov, Robin DiFrancesco, William Jusko, Marc Earnst, James Mohler, Timothy Murphy and Robert Bies

1 University at Buffalo, State University of New York; 2 Roswell Park Cancer Institute

OBJECTIVES/SPECIFIC AIMS: Drug development is a common research pursuit for basic and clinical scientists that interfaces diagnostic/therapeutic challenges with funding agencies, pharmaceutical industry, regulatory systems, and education. The University at Buffalo Clinical and Translational Science Institute (CTSI) has implemented a Drug Development Core (DDC) with goals that foster team science and collaboration, optimize laboratory use, and networks investigators. Our goals are to foster collaborations within the region and with other CTSAs. METHODS/STUDY POPULATION: The DDC met with 360 potential investigators from 14 departments and several local companies. There were 35 portal requests from 15 departments and 7 companies; 8 were from training programs. For 28 requests, a reviewer provided consultation, while 7 required discussions and review of data. DDC assisted with 15 grant applications (outcomes pending). 10 industry-related new drug development requests and 1 regulatory review. Curriculum reviews noted overlap and gaps. Cross-institute discussions, while 7 required discussions and review of data. DDC assisted with 15 grant applications (outcomes pending). 10 industry-related new drug development requests and 1 regulatory review. Curriculum reviews noted overlap and gaps. Cross-institute opportunities...