



Faculty Name: Esther Speer, MD

Academic Title: Assistant Professor of Pediatrics

Medical School: Johannes Gutenberg University Mainz, Germany

Dissertation (Equiv. PhD): Rheinische Friedrich-Wilhelms University Bonn, Germany

Residency: Pediatrics, SUNY at Brooklyn/Downstate

Fellowship: Neonatal Perinatal Medicine, University of Chicago and University of Pittsburgh

Interests: My research focuses on the immunopathology of neonatal sepsis and hyper-inflammation and the development of adjunctive anti-inflammatory pharmacological therapies that can improve survival and outcome of infected newborns. Utilizing a variety of in vitro and in vivo models of neonatal sepsis and inflammation, my lab aims to develop pharmacological therapies to control the effects of systemic and central nervous system inflammation on the developing neonatal brain and other organ systems of the term and preterm neonate.

Research Project Titles:

1. *Early and delayed neurological effects of newborn sepsis* (a murine model of the effects of neonatal sepsis-induced neuroinflammation on neurogenesis and developmental outcome)
2. *In vivo imaging of bacterial infections in a newborn rodent and rabbit model* (an optical and PET imaging study)
3. *Immunomodulatory therapy to improve outcomes of neonatal sepsis in a murine bacterial sepsis model*
4. *Inhibition of live microbial and Toll-like receptor-mediated immune responses in human cord blood*

Recent Publications:

1. **Speer EM**, Diago Navarro E, Ozog LS, Dowling DJ, Huo W, Raheel M, Fries BC, Levy O. Pentoxifylline alone or in combination with gentamicin or vancomycin inhibits live microbe-induced pro-inflammatory cytokine production in human cord blood and cord blood monocytes in vitro. *Antimicrobial Agents and Chemotherapy*. 2018, 62: e01462-18. PMID: 30275087.
2. **Speer EM**, Dowling DJ, Xu J, Ozog LS, Mathew JA, Chander A, Yin D, Levy O. Pentoxifylline, dexamethasone and azithromycin demonstrate distinct age-dependent and synergistic inhibition of TLR- and inflammasome-mediated cytokine production in human newborn and adult blood in vitro. *PLoS One*. 2018, 13: e0196352. PMID: 29715306.
3. **EM Speer**, X Lin, A Murthy, W Hou, S Islam, N Hanna. Pentoxifylline inhibits lipopolysaccharide-induced inflammatory mediators in human second trimester placenta explants. *Placenta*. 2017; 58: 60-66. PMID: 28962697.
4. **Speer EM**, Dowling DJ, Ozog LS, Xu J, Yang J, Kennady G, Levy O. Pentoxifylline inhibits TLR- and inflammasome-mediated in vitro inflammatory cytokine production in human blood with greater efficacy and potency in newborns. *Pediatric Research*. 2017; 81: 806-816. PMID: 28072760.

Link to PubMed bibliography:

<https://www.ncbi.nlm.nih.gov/myncbi/1HyrspwtpQX/bibliography/public/>