The problem: Translocation of gut bacteria to the lungs has been suspected for decades to cause respiratory failure in shock, but past studies have failed to detect it using insensitive culture-based techniques.

Determine how gut microbiome contributes to organ failure in critical illness

The solution: Using novel, ultra-sensitive molecular techniques to determine if gut-long translocation occurs in critically ill patients. The three new techniques will reveal the following about bacteria:

- How much there is
- Where it comes from
- What it is doing

The technology:

- Microbiome: Determine the diversity and identity of bacterial DNA in the blood
- Quantification: Determine the quantity of bacterial DNA in the blood
- Metabolomics: Determine if gut bacteria-derived molecules translocate to the lungs

The team:

- Robert Dickson, MD
  Principal Investigator
- Scott VanEpps, MD, PhD
  Co-Investigator
- Kathleen Stringer, PharmD
  Co-Investigator

Award amount: $40,000 over two years

American Thoracic Society Unrestricted Research Grants