

Innate immune training and host defenses against infections towards new biomarkers to improve sepsis management

Sepsis is a leading cause of preventable death. Sepsis affects ~49 million people and is responsible of 11 million deaths per year, representing 19.7% of all deaths worldwide. Metabolic perturbations underlie the dysregulated host response observed in sepsis. Trained immunity, which refers to the capacity of memory of the innate immune system protecting from infection, represent one of the major breakthroughs in immunology and infectiology. Here we intend to (i) describe the metabolic alterations in preclinical mouse models of sepsis (pneumococcal infection) and, (ii) test mechanistic underpinnings potential alterations. Our specific aims are to: 1) achieve metabolomic profiling (septic mice and human), 2) comparatively describe kinetics of metabolic changes due to pneumococcal sepsis in naïve and trained mice, 3) explore potential early diagnostic signature identifying at risk individuals and 4) explore pharmacological compensation of metabolic alterations.