Inflammation is an unavoidable consequence of the surgical procedure in organ transplantation. I will discuss our work on how inflammatory factors contribute to pathologic alloimmune responses and how their blockade may affect transplant rejection. In addition, the gut microbiome interfaces with innate and adaptive immune responses to control immunopathological processes locally within the gut and systemically in non-gut tissues. Potential effects of the gut microbiome on alloimmune responses and how this affects immunological damage of transplanted organs will also be discussed.