**SAMPLE ABSTRACT**

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A critical role of CpG DNA in a murine peritonitis model

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**Objective**: To investigate the role of TLR-9 and its ligand, bacterial DNA (CpG DNA) in the development of sepsis. **Methods**: Twenty-four hours after cecal ligation and puncture (CLP) or sham operation in C56/BL6 mice, TLR-9 expressions on the hepatic and splenic macrophages (F4/80+ cells) were analyzed using flow cytometry. Next, FITC-labeled CpG DNA were injected into the end of ileum after laparotomy, and then CLP or sham operation was performed. Mice were sacrificed 48 hours after surgery, and FITC+ cells on the hepatic and splenic macrophages were analyzed. Finally, in order to test the toxic reaction of CpG DNA in the bloodstream during sepsis, mice with CLP were randomly administered either CpG ODN (CpG-CLP) or control ODN (Cont-CLP) intravenously 12 hours after CLP. Serum alanine transaminase (ALT) and inflammatory cytokine levels were analyzed, and pathological examinations were performed. The survival rates were also determined. **Results**: CLP mice had increased TLR-9 expressions and abundant FITC+ cells in hepatic macrophages (Fig.), suggesting the translocation of CpG DNA into the liver may occur. In contrast, neither increases of TLR-9 expression nor FITC+ cells were observed on the splenic macrophages in CLP mice. Both hepatic and splenic macrophages in sham-operated mice had no FITC+ cells. CpG-CLP mice had great increases of inflammatory cytokines such as MIP-2, IL-12, IFNγ, and IL-10 after the surgery, and had an elevation in serum ALT levels, and pathologically discernable liver injury. In addition, CpG-CLP mice had a significantly increased mortality. **Conclusions**: These results suggest that intestinal bacterial DNA that has leaked into the portal and/or systemic circulation may contribute to the pathogenesis of the liver injury associated with severe sepsis, resulting in an increased mortality.

