Business Case Analysis for the Potential Treatment of Sepsis

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Sepsis is a life-threatening immune response to infection that causes multi-organ failure, tissue damage and death. Besides palliative care and administration of antiviral and antibiotic compounds to stop infection, there are no FDA approved treatments for sepsis in the current market. The incidence of sepsis has been increasing as the sepsis awareness, recognition and diagnosis techniques such as blood culture analysis and molecular diagnosis are improved. The annual hospitalization costs of sepsis in the US are more than $62 billion, representing an average cost of ~$36,500 per hospital stay for ~1.7 million sepsis patients. The Translational Research team JGJ at the Institute of Protein Design is working to develop a potential treatment of respiratory disease associated sepsis that typically involves a respiratory virus infection. The potential JGJ candidate for treating sepsis is a designed protein complex that promotes regeneration and stabilization of vascular epithelial cells by engaging endothelium-specific receptors with minimal off target effects and optimal serum half-life following delivery by intravenous injection. My research goal was to analyze the business case for the potential sepsis treatment. To do this, I focused on developing a discounted cash flow expected net present valuation (eNPV) model for the development and commercialization of the new therapeutic candidate. The eNPV model incorporates success

rates for clinical development phases, and numericized data for the potential treatment for respiratory disease associated sepsis, based on the current sepsis market analysis.