**Introduction:**
In sepsis and septic shock, treatment with IgM-enriched human immunoglobulin preparations can reduce patient mortality and mechanical ventilation [1]. Elevated levels of pro- and anti-inflammatory cytokines are detected in the circulatory system of septic patients and correlate with survival. Excessive release of cytokines can be associated with immune dysregulation observed in sepsis. The observed large amount of anti-inflammatory cytokines is not sufficient to limit the negative effects of high levels of pro-inflammatory cytokines.

**Methods:**
Primary cells were used for experiments on modulating the production of inflammatory mediators by the IgM enriched human immunoglobulin preparation Pentaglobin in vitro. Commercial ligand binding assays were used for cytokine determinations. The binding of complement to antigen-antibody complexes was characterised by flow cytometry.

**Results:**
In sepsis relevant pathogens can be neutralized by antibodies derived from human plasma. The production of the proinflammatory cytokines TNF-alpha, interleukin-6 and interleukin-1beta can be reduced by IgM-enriched human immunoglobulin preparations. Functionally relevant is the binding of the antibodies to their cellular receptors. IgM-enriched human immunoglobulin preparations bind the complement factor C1q better than normal IgG preparations and can thus efficiently initiate the innate immune response by activating the complement cascade. The interaction with complement is a critical link of various immunological mechanisms.

**Conclusion:**
IgM-enriched human immunoglobulin preparations can reduce pathogen-induced inflammatory mediators and have the potential to reduce the pathogen load in sepsis. Their immunomodulatory properties initiate favorable complement factor-mediated activities and limit excessive cytokine reactions.

**References:**