



Case #717

## **Inhibitors of Acute Severe Inflammation in Trauma**

There is a critical need for therapeutic targets to prevent bleeding, edema, multi-organ failure and infectious complications in conditions characterized by overwhelming acute inflammation and circulating histone release. Emerging evidence indicates that circulating toxic histones are a key player in the overwhelming inflammation triggered by acute illnesses, including trauma, severe sepsis, major surgery, acute lung injury and stroke. Toxic histones cause cytotoxic injury to the vascular endothelium and contribute to poor outcomes in sepsis and trauma. Effective therapeutic strategies are not available to reduce the cytotoxic injury and coagulopathy in these situations and there are no therapeutic drugs that block and neutralize histones, until now. Recent work by the Freeman lab has demonstrated that the drug suramin binds and neutralizes toxic histone proteins, and in a *in vivo* injury model caused by histone infusions, completely abrogates their toxic effects, supporting suramin's therapeutic use in acute inflammatory conditions. Clinical blockage of histones with suramin would be expected to improve mortality and prevent the damaging complications of acute inflammation, establishing it as an early lead compound.

### **Applications:**

- Severe sepsis, trauma, major surgery, acute lung injury, cerebral stroke, systemic lupus and cancer.

### **Advantages:**

- Small molecule therapeutic for acute inflammation.
- Reduction of damaging complications.
- Improved mortality.
- New mechanism for therapeutic development.

### **Intellectual Property and Development Status:**

US Provisional Application 62/716,430

Looking for both licensing and industry partners for lead optimization and pre-clinical development

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