Alterations in coagulation and inflammation in response to injury are interrelated. Cytokines and other factors, such as damage-associated molecular patterns (DAMPs), whose plasma levels are elevated after injury, can simultaneously act as initiators of inflammation and coagulation. How these mediators of inflammation interact with well-described coagulation markers and co-factors is still under investigation. The aim of this study is to correlate changes in circulating cytokines and DAMPs with coagulation and coagulopathy in burn patients and others with severe trauma (ISS>15). Admission blood samples were drawn from trauma (n=10) and burn (n=10) patients before transfer to the intensive care unit. DAMPs, D-dimer, vWF and cytokines (IL-17a, IL-21, IL-22, IL-23, IFNγ, TNFα, IL-1β, IL-4, IL-6, IL-10, IL-17f, IL-25, IL-31, IL-33, sCD40L) were measured by ELISA or Bioplex assay. The average age was 38.7±7.1 years and 48.8±4.7 years (for trauma and burn patients (p=0.25, respectively). All values stated as mean ±SEM. ISS was 18±5.8 for trauma patients, and the burn size was 41.6±4.5%. IL-33 (667±152 vs. 127±49 pg/ml, p=0.006), IL-22 (200±62 vs. 19±10 pg/ml, p=0.02) and HSP-72 (151±22 vs. 59±9 ng/ml, p=0.001) were higher in the trauma group. In contrast, platelets (295±16 vs. 234±17, p=0.02) and vWF (4393±450 vs. 2045±275, p=<0.001) were elevated in burn patients. sCD40L, a marker of platelet activation, and IL-17a were similar for both trauma and burn patients (115±33 burn vs. 187±40 pg/ml trauma, p=0.185 and 31±13 burn vs. 64±15 pg/ml trauma, p=0.115, respectively.) A strong correlation (R=0.79) between sCD40L and IL-17a was observed in burn patients. These results suggest that although trauma patients have higher levels of select cytokines and DAMPs, a unique interrelationship between platelet activation and IL-17a may exist in burn patients involving lymphocyte activation through sCD40L release. Further studies are warranted.