Abstract in English
An important observation in our study is that the inflammatory response in the burn wound resolves substantially sooner than the systemic response. In addition, this systemic inflammation appears to be related to burn wound size. We observed in adult burned patients that the blood levels of the pro-inflammatory complement activator CRP correlate positively with burn wound size, while the blood levels of the anti-inflammatory complement inhibitor C1inh only increase approximately two-fold, independent of burn wound size.

These findings are important for the clinic to take into account for instance for patient follow-up. The long-lasting systemic inflammation may have deleterious effects on multiple organs, especially in patients with larger burn wounds. Moreover, our studies show that C1inh treatment may benefit burned patients and that the effect of therapeutically increasing C1inh blood levels may be especially beneficial in patients with larger burn wounds.

Another important observation in our study was the long-term presence of microcirculatory thrombi in the burn wound, and the possibly driving role herein of neutrophilic extracellular trap (NET) formation. These findings may explain the often observed secondary burn wound expansion or wound deepening in burned patients. Our results could point to NETosis as a possibly key target for therapeutic intervention to counteract burn wound deepening. Finally, we found that NOX2 expression was increased in keratinocytes in newly forming epidermis after burn injury and that C1inh, which has previously shown to increase the rate of reepithelialisation, counteracted this effect, suggesting a role for NOX2 in the reepithelialisation of burn wounds.