Abstract ID : **94**

Decay accelerating factor as a virulence determinant in influenza A virus infection

Content

The complement is no longer considered a mere killer of infected cells and pathogens, but is viewed a key player in immunity. It bridges innate and adaptive responses, and orchestrates the intensity of immunological and inflammatory processes by communicating with immune cells. Interactions are beginning to be fully appreciated, and their identification is crucial, as excess complement activation is associated with severe outcomes in many infections. The complement must be selective enough to avoid mounting a potent attack against the host. The self-targeting deleterious effects of complement are avoided via a series of so called regulators of complement activation (RCA) whose function is perfect for a viral targeting. Amongst the RCAs complement decay-accelerating factor (DAF or CD55) and CD59 block the complement cascade at central and terminal points, respectively and localise ubiquitously at the apical surface of polarised cells. The lack of DAF and CD59 is associated with over-stimulation of complement resulting in increased inflammatory cytokines and worse outcomes in several models of infection and autoimmunity. We found that, conversely to observed in these models, in IAV infection the lack of DAF, but not of CD59 (used as control), mitigate the outcome of disease. Our results suggest a completely novel mechanism that bypasses the well-established immune evasion strategy of protecting virions from complement-mediate attack through incorporation of RCAs in their envelopes. In fact, our data shows that DAF deficient mice display less inflammatory signs in the lungs, and resolve the inflammation faster without affecting viral clearance. Mechanistically, we have evidence that DAF is recruiting monocytes by a process we are dissecting. Our results contribute to better define virulence factors in IAV infection and understand how components of the complement communicate with other arms of host immunity.

Choose primary session

Innate Immunity

Choose secondary Session

Pathogenesis

Contribution Type : Oral presentation