

Getting to know your IL-1 cytokines - the distinct roles of IL-1 α and IL-1 β

IL-1 signaling regulates fundamental physiological processes including defense against infections and metabolism. It is well established that the major triggers of IL-1 signaling are the cytokines IL-1 α and IL-1 β . Given the importance and long research history of these cytokines, it is surprising that very little is known about the common and distinct functions. Using a model of invasive infection with the gram-positive pathogen *Streptococcus pyogenes* we were able to reveal striking functional differences between IL-1 α and IL-1 β . Both cytokines are required for successful defense against the infection, similar to the requirement for the IL-1 receptor. However, while IL-1 β drives the primary immune response (e.g. neutrophil recruitment) at the site of infection and for containing the pathogen, IL-1 α is dispensable for this process. Instead, IL-1 α appears to be essential for adjusting body functions to better cope with infection-associated pathologies. Together, our data demonstrate that IL-1 α and IL-1 β are essential and non-redundant players in host defense against invasive infection with *S. pyogenes*. The findings suggest that IL-1 β drives the resistance whereas IL-1 α promotes resilience during infection – these findings will be discussed in more detail at the meeting.

Keywords : IL-1 α , IL-1 β , infection-associated pathologies, resilience

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