Early Key Events for CIAO COVID-19 AOP Design

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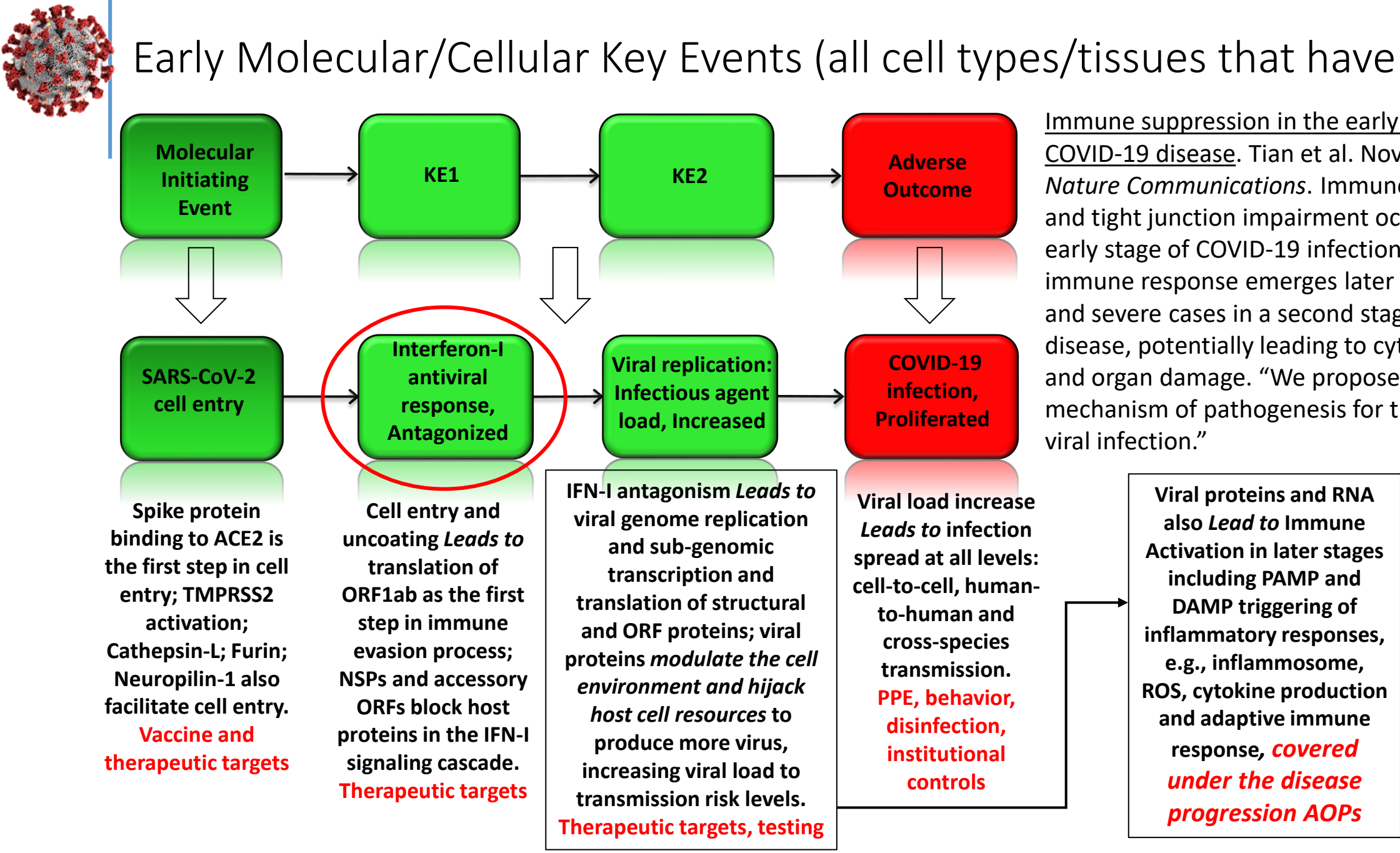
Early Molecular/Cellular Key Events (all cell types/tissues that have ACE2)



Immune suppression in the early stage of COVID-19 disease. Tian et al. Nov 2020, *Nature Communications*. Immunosuppression and tight junction impairment occur in the early stage of COVID-19 infection; an activated immune response emerges later in moderate and severe cases in a second stage of the disease, potentially leading to cytokine storm and organ damage. “We propose a two-stage mechanism of pathogenesis for this unusual viral infection.”