# Cytokine Storm in COVID-19

### Immune Response to SARS-CoV-2
- Significant elevation of TNF-α, IL-1β, IL-6, GCSF, IFN-γ, MCP-1, and MIP-1-α
- Cytokine inhibition has been tried in COVID-19 despite its lack of efficacy in other severe infections

### Physiology
- The kinetics of cytokine activation during SARS-CoV-2 infection are still unclear
- Direct viral invasion and immune-mediated inflammation both contribute to host tissue damage

### ARDS
- IL-6 plays a key role in viral pathogenesis and host defense
- Median levels of IL-6 in COVID-19 ARDS are elevated but lower than seen in typical ARDS

### Tociluzimab (IL-6 Receptor Blocker)
- Did not prevent death or intubation in moderate COVID-19 (RCT vs placebo)
- Did not prevent clinical worsening in patients needing supplemental O₂ (RCT vs placebo)

### Practical Applications
- IL-6 is elevated in COVID-19, but its role in the pathophysiology may be limited
- Tocilizumab was not effective in preventing clinical worsening, intubation, or death

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