

## Receptors and Signaling Cytokines and Chemokines

### General Properties of Cytokines and Chemokines

The PLC pathway induces calcium release and PKC activation, which mediate the activation and differentiation of T cells. The Ras/MAP kinase cascade activates transcription through AP-1 and NF- $\kappa$ B, leading to the expression of cytokines and chemokines. Cytokines are secreted by T cells and act on other cells to regulate their function.

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- Early vaccination studies led the way to immunology 2
- Vaccination is an ongoing, worldwide enterprise 3
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