

'Shaping' cellular responses to TNF

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Tumor Necrosis Factor (TNF) is a proinflammatory cytokine that activates a complex signaling network to induce a variety of cellular behaviors including survival, proliferation, differentiation and cell death. Not only is the response to TNF variable between cell types, there is often striking variability from cell to cell of the same type. This cell-to-cell variability stems in part from the fact that the TNF-induced signaling network includes opposing pro-survival NF-kappaB-driven transcription and pro-apoptotic caspase activation. In our work, we use quantitative cell biology approaches to leverage this variability to better understand how cells dynamically integrate information within and across several TNF-induced signaling pathways and also investigate some of the sources of cell-to-cell variation that ultimately shape a cell's response to TNF.

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