Cell Death and Inflammation

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Inflammation is the set of reactions seen in response to infection or tissue damage and is critical for the recruitment of cells of the innate immune system to the correct location, as well as for the initiation of adaptive immune responses. The inflammatory response also initiates the process of tissue repair and the restoration of normal tissue integrity. Apoptosis is typically considered to be a non-inflammatory mode of cell death whereas Necrosis, as well as a recently described mode of programmed necrosis called Necroptosis, are considered to be pro-inflammatory. However, things are not quite as simple as they might seem. Many physiological triggers of apoptosis, such as TNF, Fas and TRAIL, can elicit the production of pro-inflammatory cytokines and the effects of Necroptosis on the production of such cytokines has yet to be reported. Here I discuss the role of cell death stimuli as triggers of inflammation and the effects of apoptosis and Necroptosis on these inflammatory signals. In contrast to the prevailing view, I will present data to argue that Necroptosis is an anti-inflammatory mode of cell death and that Apoptosis is not necessarily non-inflammatory.