Activation of the NLRP3 inflammasome in dendritic cells induces IL-1?-dependent adaptive immunity against tumors

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The therapeutic efficacy of anticancer chemotherapies may depend on dendritic cells (DCs), which present antigens from dying cancer cells to prime tumor-specific interferon-? (IFN-?)-producing T lymphocytes. Here we show that dying tumor cells release ATP, which then acts on P2X 7 purinergic receptors from DCs and triggers the NOD-like receptor family, pyrin domain containing-3 protein (NLRP3)-dependent caspase-1 activation complex ('inflammasome'), allowing for the secretion of interleukin-1? (IL-1?). The priming of IFN-?-producing CD8 + T cells by dying tumor cells fails in the absence of a functional IL-1 receptor 1 and in Nlpr3-deficient (Nlrp3 /) or caspase-1-deficient (Casp-1 /) mice unless exogenous IL-1? is provided. Accordingly, anticancer

chemotherapy turned out to be inefficient against tumors established in purinergic receptor P2rx7 / or Nlrp3 / or Casp1 / hosts. Anthracycline-treated individuals with breast cancer carrying a loss-of-function allele of P2RX7 developed metas