4th Geneva Aging Workshop - Aging and Cancer at the Crossroads

MOLECULAR MECHANISMS OF TNF-α-INDUCED APOPTOSIS IN AGING HUMAN T CELL SUBSETS

Sudhir Gupta

University of California, Irvine, California, USA

TNF-α, a pro-inflammatory cytokine, exerts its biological activity by signaling via its two receptors, TNFR-1 and TNFR-2 and by activating NF-κB. NF-κB is essential for survival of many cell types; however, TNF-α also induces cell death. Human aging is associated with lymphopenia that is predominantly shred by naïve cells depletion. In addition, there is an accumulation of oligoclonal memory T cell subsets, which display characteristics of replicative senescence, and increased TNF-α production in aged humans. In this presentation, I will discuss the molecular mechanisms of altered TNF-α-induced apoptosis in naïve, memory, and effector CD8+ T cells in human aging, in particular a role of in transcription factor NF-κB and Fas-associated death domain (FADD) in increased apoptosis.