

**THE SUSCEPTIBILITY TO APOPTOSIS OF NATURAL KILLER (NK)
CELLS IN ELDERLY INDIVIDUALS WITH LOW AND HIGH LEVELS
OF NK CYTOTOXIC ACTIVITY**

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NK cells are non-T and non-B large granular lymphocytes that participate in the initial stage of the immune defense mechanism. They are cytotoxic without prior sensitization or MHC restriction for transformed cells or cells infected with some viruses or bacteria. Our data indicate that the level of NK activity correlates with the state of an individual's health. Low NK cell function in elderly individuals is associated with an increased incidence of severe infections. We propose that changes in NK activity correlate with disorders of apoptosis. In lymphocytes, apoptosis plays an important role in maintaining the T cell repertoire, in deleting autoreactive cells and in cytotoxicity against target cells. The aim of this study is to define the role of apoptosis in functional disorders of NK cells during the ageing process. A group of old and young volunteers was examined. PBMC were isolated from freshly collected blood by centrifugation on Ficoll. NK cells were isolated from PBMC by negative selection using a magnetic cell separator (MACS, Miltenyi Biotex). The intensity of the apoptosis was measured using the AnnexinV test, a cytometric evaluation of DNA content (sub-G1 peak in DNA histograms) and as a "ladder" by DNA gel electrophoresis. The expression of genes promoting apoptosis (cytochrome c, caspase3 and bax) and inhibiting apoptosis (bcl-2) were analysed at the protein level, using western blotting.