

OBJECTIVE AND PLAN OF THE STUDY

Efficacy of NK cells in control of malignancy has been studied. NK cells were obtained from normal and tumour bearing swiss albino mice. Different activities of the cells with IL-2 activation have been studied. They were found to mount cytotoxicity response and ADCC against the fibrosarcoma tumour target cells. Then the cells were tested in adoptive transfer experiments for their effectiveness in curbing malignant growth *in situ*. The plan of the study is as follows:

- To begin with, the number of NK^N cells obtained from spleen (of normal mice) and NK^T (of tumour bearing mice) were determined to find out whether it varies with tumour condition.
- Blastogenesis and DNA synthesis of NK cells were studied with 50µl of IL-2 generated in culture and different doses of rIL-2 to measure the degree of activation.
- Next, the spontaneous cytotoxicity of NK cells from both the sources and then after activation with IL-2 were tested in ⁵¹Cr release assay.
- Besides being spontaneously cytotoxic, NK cells also bear Fc receptors which suggest their possible participation in ADCC type of reaction against tumour target cells. This was studied for both NK^N and NK^T cells in presence of Anti TAA antibody.
An attempt was made to detect anti TAA antibodies in serum of tumour bearing mice.
- The cytotoxic activity of NK cells *in vitro* and its boosting with IL-2 suggested the usage of the cells for adoptive transfer to curb the tumour growth. At the beginning, the homing pattern of radiolabelled IL-2 activated syngeneic NK^N cells was studied at different anatomical sites including the tumour. The highest count was obtained at tumour site indicating it as preferential site for radiolabelled NK cells.
- Therapeutic use of NK cells were done here in two ways. First was by stimulating the host's residential NK cells *in situ* by IL-2 injections. Second was by adoptive transfer of NK^N and NK^T cells from syngeneic mice after IL-2 activation.
- Adoptive cell transfer therapy was also tried after surgical removal of the tumour to observe whether there was any inhibition of tumour recurrence. This was done to suggest a better approach to adoptive immunotherapy.