Esther F. Hays, M.D.
Emeritus Member
AACR Member Since 1958

My studies in cancer research extended from 1952 until 1992. We studied a T-cell lymphoma (leukemia) in inbred mice. My interest was sparked in my last year as a medical resident at the New York Hospital. It continued through my career at the UCLA School of Medicine where I was a member of the faculty of the Department of Medicine Division of Hematology Oncology.

The AKR inbred mouse is a model of lymphoma. It develops the thymus resulting in a lethal disseminated disease. It is derived from T-cells maturing in the thymus. It occurs in all AKR mice at 21-24 months of age. It has been shown by Dr. Jacob Furth that removal of the thymus prevented this disease. Dr. Ludwik Gross demonstrated that this disease was caused by a virus, by injecting neonatal mice (from a strain that did not develop lymphoma) with cell-free filtrates from AKR lymphomas.

We were the first laboratory to confirm these controversial studies and went on to show that inoculations of neonatal mice of the C3H and AKR strains with cell free filtrates of lymphoma tissue resulted in development of the typical T-cell lymphoma within 6-8 weeks, thus allowing us to use a model which we could study this virus-induced lymphoma in a shorter time frame. The lymphomagenic virus is an endogenous retrovirus. If the thymus (the target organ for disease) is removed lymphoma is prevented. Cloned isolates of immortalized cell lines were prepared from lymphomas and shown to continually produce this oncogenic virus allowing studies of the nature of the virus and the virus cell interactions in this system.

Neonatal thymectomy of mice results in an immune deficiency characterized by tolerance for allografts. For example CH3 mice will accept skin grafts from AKR or other strains. Remnants of thymus composed only of stromal (epithelial) cells, when grafted to neonatally thymectomised at one month of age regenerate a thymus composed of both epithelial cells and lymphocytes, showing that the stromal cells of the graft attract lymphoid cells from the host. When thymus stromal tissue is grafted to virus-inoculated, neonatally thymectomised mice lymphomas develop in the reconstituted grafts. Thus, the reconstituted graft of thymus behaves like “normal” thymus with regard to virus-induced lymphomagenesis.

Subsequent research with human immunodeficiency virus (also a retrovirus) and cells of the human thymus was initiated and is continuing with colleagues at UCLA.
The AACR Annual Meetings provided a place for interactions with other scientists, a chance to hear about current research, and an opportunity to learn of new scientific observations.