



Sayeeda B. Zain, Associate Professor of Oncology in Biochemistry. Ph.D. Glasgow University, 1972.

#### Relevant Publications

Tulchinsky, E., Kremarov, D., Ford, H.L., Reshetnyak, E., Lukanidin, E., Salim, M. and Zain, S. (1993) Characterization of a positive regulatory element in the *mts1* gene. *Oncogene* 8:79-86.

Tulchinsky, E., Ford, H.L., Kramerov, D., Reshetnyak, E., Grigorian, M., Zain, S. and Lukanidin, E. (1992) Transcriptional analysis of the *mts1* gene with specific reference to 5' flanking sequences. *Proc. Natl. Acad. Sci. USA* 29:9146-9150.

Klinge, C.M., Peale, F.V., Hilf, R., Bambara, R.A. and Zain, S. (1992) Cooperative estrogen receptor interactions with consensus or variant estrogen response elements *in vitro*. *Cancer Res.* 52:1073-1081.

Sandhu, F.A., Salim, M. and Zain, S.B. (1991) Expression of the human  $\beta$  amyloid protein of Alzheimer's disease specifically in the brains of transgenic mice. *J. Biol. Chem.* 266:21331-21334.

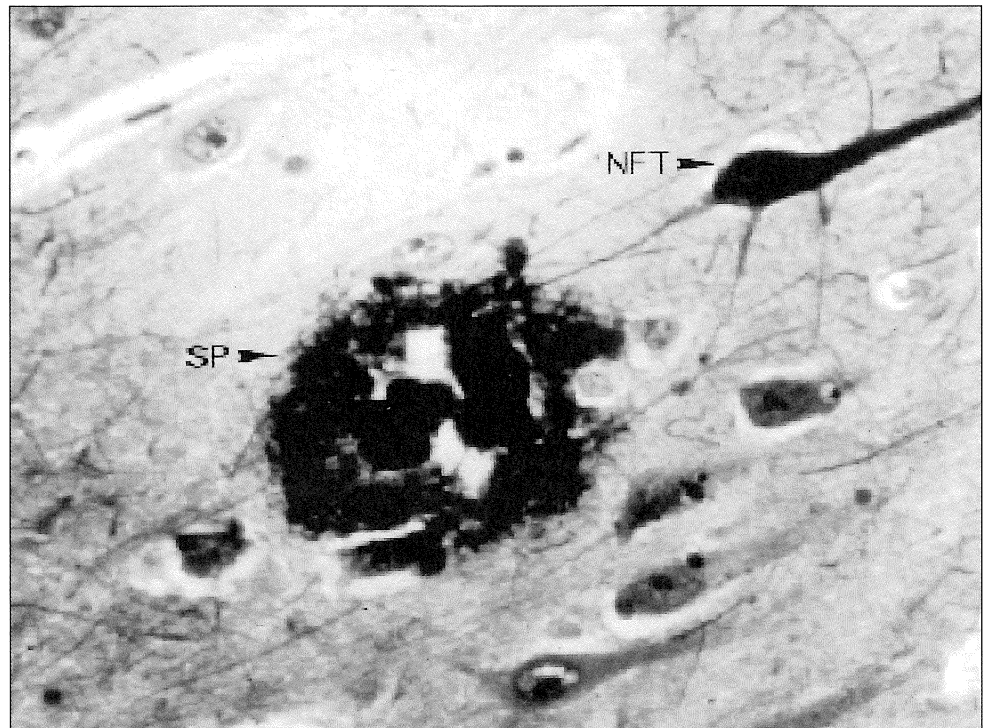
Ludwig, L., Peale, F.V., Klinge, C., Bambara, R., Zain, S. and Hilf, R. (1991) A rapid, convenient new method to measure estrogen receptor binding to DNA. *Molec. Endocrinol.* 4:1027-1033.

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## Mechanisms of Cancer Metastasis and Alzheimer's Disease

Dr. Zain's research interests over the past 20 years have been in studying molecular mechanisms involved in cellular proliferation and death. Presently, her work focuses on two disease animal models created in her lab to study tumor progression and metastases and neuronal death in Alzheimer's Disease (AD). These models were built after her lab cloned *mts1* cDNA from malignant tumors and Amyloid Precursor Protein (APP) from AD afflicted human brains. The tumor metastases project utilizes an *in vivo* breast carcinoma metastasis model and the AD project uses transgenic mice overexpressing  $\beta$  amyloid.

Studies in these projects involve signal transduction events, role of growth factors and their receptors, DNA transfections and gene knock off, deletion mutagenesis, DNA methylation events, protein expression and purifications, and protein:protein interactions to decipher the molecular and cellular basis for tumor progression in breast cancer and neurodegeneration in Alzheimer's Disease.



A photomicrograph of Alzheimer's disease brain tissue stained with Bielschowsky's silver stain shows the characteristic lesions of AD. Extracellular senile plaques (SP) with a central core of amyloid and a neuron filled with neurofibrillary tangles (NFT) are marked with arrows. Also, wisps of dystrophic neurites are visible throughout the section.