ADVANCES IN NEUROBLASTOMA RESEARCH


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Preface

This volume contains papers presented at the Third Symposium on Neuroblastoma Research held at The Children's Hospital of Philadelphia in May of 1984. In the five-year interval between the second and third symposia, there has been an explosion of research in the basic biology of neuroblastoma. A much larger number of investigators are working in this area and there was a significant increase in the number who wished to present data. There were, therefore, a larger number of papers which, of necessity, had to be more limited in length. Much of the valuable discussion during the conference has been summarized and is included after each group of papers dealing with the individual topic. The initial papers start at the molecular level, proceed through cytogenetics and biochemical markers to clinically related topics, and culminate in recent advances in treatment. The largest number are in the area of basic or applied laboratory research, a change from the previous conference which addressed more fully the clinical problems of neuroblastoma.

The first seven sections deal with cell differentiation of both human and mouse neuroblastoma cell lines. Agents causing differentiation that are discussed include retinoic acid, alpha fetoprotein, prostaglandins, and in the C1300 line, adenosine analogues. Also addressed are the changes in cell surface antigens accompanying morphologic differentiation and the interrelationship of neuronal, schwannoma, and melanotic differentiation of neuroblastoma cells.

Oncogene expression is discussed in the second section, including the important observation of the association of amplification with disease stage and prognosis. Several papers in this section present data on gene amplification, and one compares neuroblastoma with retinoblastoma. The final paper reports the possible relationship of chromosome abnormalities and gene amplification with the effect of chemotherapy.

The volume continues with several papers addressing the expression of gene products. These include tubulin, various proteins, proteoglycans, and collagen. One investigator addresses the glycosylation changes in membrane glycoproteins after transfection of NIH 3T3 cells with human tumor DNA.

One of the largest areas explored is that of tumor markers. In the clinical field the advent of neuroblastoma-associated biological markers has been
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extremely useful for diagnosis and prognosis. The markers discussed are gan
gliosides, neuron specific enolase, and ferritin. Data was presented on
the weak expression of HLA antigen on neuroblastoma cells and the effects
of interferon on this expression. The final topic in this section deals with the
uptake of most neuroblastoma tumors of the $^{131}$I labelled meta-iodo-
benzylguanidine.

The two final sections present clinical topics mostly relating to bone
marrow transplantation and methods of ridding the bone marrow of tumor
cells prior to its use as an autologous transplant. Methods of purging the
bone marrow include lectin separation and antibody coated magnetic micro-
spheres. The new therapies discussed include bone marrow transplantation
with multidrug chemotherapy regimens, with or without total body irradia-
tion and allogeneic or cryopreserved autologous marrow reinfusion in pa-
tients who have relapsed and those newly diagnosed.

This volume will be of primary interest to the basic scientist working in
the field of human neuroblastoma and the clinician who is seeking clues to
achieve a better understanding of this unusual childhood cancer in order to
provide better therapy. However, the several chapters on molecular biology
will be of interest to researchers in any basic cancer research.

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