

Pediatric Tissue Bank For Tumor Research Specimens

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Synopsis:

To develop a comprehensive resource that will procure, characterize, preserve and distribute high quality pediatric human tissue specimens from a wide variety of organ sites to CHRCO biomedical researchers. In addition to normal, benign and malignant tissues, tissues from patients with specific diseases may also be a component of the tissue bank. Trained personnel will coordinate the retrieval, preservation and delivery of specimens obtained from surgical resections and from autopsies.

Tissues from the Tissue Bank are expected to be utilized in a wide variety of research projects that may improve upon existing knowledge regarding the pathology, genetics, and treatment of pediatric malignancies and other pediatric diseases. Research enabled by the Tissue Bank is likely to contribute to discoveries of the role of genetic alterations in cancer initiation, progression and metastasis and may lead to improvements in the diagnosis and classification of tumors. Tissue Bank specimens may also be critical to determining the relevance to humans of findings from research using animals and cell lines. The Tissue Bank may provide specimens needed for the development of emerging technologies and the application of these technologies to study problems in cancer biology, and to develop markers for diagnosis, prognosis and prediction of response to therapy.

Examples of the types of research projects supported could include:

1. Development of mouse/human chimeric and xenotransplant models for cancer research
2. Studies of carcinogen activation, DNA adduct formation and detoxification in human tissue, organ specificity and inter-individual susceptibility
3. Studies to examine pharmacologic effects of chemotherapeutic drugs in human systems
4. Studies addressing drug transport and delivery
5. Identification of mutations of protooncogenes in pediatric tumors
6. Development of monoclonal antibodies and cell lines
7. Characterization of epigenetic lesions as non-random and tumor specific type events
8. Studies of gene expression profiles and studies to determine their clinical usefulness
9. Identification of novel diagnostic molecular markers via genome wide expression tools
10. Methylation microarray analysis of cancers

Insights and advances from this research are expected to generate publications in high quality peer reviewed journals, funding from external granting agencies, and pilot data sufficient to facilitate researcher access to nation-wide pediatric tumor banks, such as that maintained by the Children's Oncology Group.

Importantly, the Tissue Bank will provide a critical resource to facilitate translational research in pediatric malignancies and other diseases. This resource is likely to be highly utilized by numerous groups within the medical and research communities, especially those in which the development of translational research projects and/or training programs in translational research areas has become a major goal. Such groups include the Neuro-oncology Center and the newly established Cancer Working Group, both of which are actively moving towards active and robust collaborations between basic science and clinical medicine within the institution.