The comprehensive study of embryonal and Childhood Solid Tumors and Outcomes

Wilms' tumor, or nephroblastoma, is the most common form of renal cancer affecting children. Much progress has been made in the care of these children over the last three decades, and overall 4-year survival rates now exceed 90%. Nevertheless, a subset of patients continues to experience poor outcome if stricken with more aggressive unfavorable histologic and primitive blastemal-predominant variants and suffer disease-relapse.

Our laboratory has also begun a unique study to explore the biological basis for racial disparities in the development and progression of the lethal childhood kidney cancer, Wilms' tumor.

Specific Aim 1: To characterize the roles of developmentally regulated transcriptional programs in embryonal and childhood solid tumors.

Specific Aim 2: To translate molecular observations with clinical outcomes as a determinant of prognostic significance and biological relevance.

Specific Aim 3: To establish epidemiologic features of embryonal and childhood solid tumors at Vanderbilt, across Tennessee and in Africa.

Specific Aim 4: To assign a molecular fingerprint to embryonal tumors using mass spectrometry that associates with adverse events.

Specific Aim 5: To develop a molecular fingerprint using mass spectrometry that classifies embryonal and childhood solid tumor tissues according to either black or white ethnicity.

Specific Aim 6: To establish a platform (i.e./ Embryonal Tumor Repository) for the biological study of these problematic childhood malignancies both at Vanderbilt and in Kenya.

Specific Aim 7: To characterize the late toxic effects of embryonal tumor therapies.

Specific Aim 8: To determine radiographic and other clinical features that will establish criteria for the earlier resection of these embryonal tumors and thereby afford reduction in total toxic therapies administered.