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Molecular Carcinogenesis

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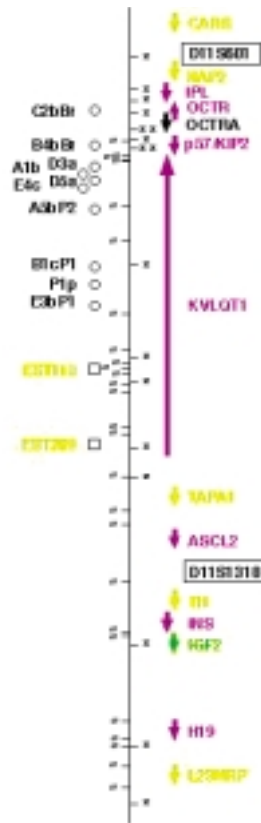
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My laboratory's interests lie in the identification of tumor suppressor genes in human cancers. While several laboratories have relied on molecular mapping data for isolation of these genes, we have taken a functional approach by mapping genes which suppress tumorigenic potential in human cancer cell lines using monochromosome transfer. By this method, we have demonstrated the existence of functional tumor suppressor genes for pediatric cancers on the short arm of chromosome 11 (the WT2

gene) and for human squamous cell carcinomas on the long arm of chromosome 11. During the last year, we finished a PAC/BAC/P1 contig across the WT2 tumor suppressor gene region and began the identification of candidate genes in the area. We have isolated 16 candidate tumor suppressor genes from this region by solution hybrid capture and sequence analysis. For the head and neck tumor project, we are localizing the site of the tumor suppressor information to a specific band on chromosome 11q to develop the necessary molecular reagents for isolation of the operative tumor suppressor gene. We have switched to the use of an in vitro raft assay which significantly decreases the time required for determination of tumor suppressor gene activity. We are also developing a method to introduce specific deletions into chromosome 11 using a loxP/Cre recombinase approach.

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Transcript Map of the human chromosome 11p15.5 tumor suppressor gene region.