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Assessing the Prevalence of a Novel Oncogene, EML4-NTRK3, in Archival Fibrosarcoma Samples

Jordana Cohen

In a case study involving a patient with non-classical infantile fibrosarcoma, molecular characterization revealed a novel somatic t(2;15)(2p21;15q25) chromosomal translocation, fusing EML4 and NTRK3. Six months after complete surgical resection of the primary tumor, bulky bilateral pulmonary metastasis of the lesion was detected (Tannenbaum et al., 2015). The patient was subsequently treated with a full course of chemotherapy and radiation. The patient was responsive to the treatment and is currently in long-term remission.

In an RT-PCR assay, 25 fibrosarcoma patients' tumor specimens were studied for the presence of EML4-NTRK3. Preliminary assessment was hypothesized to reveal recurrent prevalence of EML4-NTRK3 in patients presumably diagnosed with fibrosarcoma. After analysis of RT-PCR assays, results presented likely detection of the fusion gene in selected specimens, but inconsistent results ensued incomplete conclusions in this portion of the study. This fusion is hypothesized to be a potent oncogenic driver responsible for the malignant phenotype of cells in this disease. Since detection is probable in fibrosarcoma cases evaluated in this study, EML4-NTRK3 seems to be a likely marker for patients with similar diagnosis to receive a multimodal (chemoradiation and surgery) therapy, divergent from standard surgery to increase their chances of survival.

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