Mutations in FYN kinase pose potential diagnostic marker, therapeutic target for adult T-cell lymphoma

Technology #cu13222

Adult T-cell lymphomas are currently treated with chemotherapy, which causes severe adverse side effects and provides only a few months' averaged increased survival. This technology identifies four somatic FYN kinase mutations in adult patients with peripheral T-cell lymphoma. FYN kinase is an enzyme that plays a critical role in T cell development, and is known to interact with other pathways associated with uncontrolled cell growth (e.g., PI3K). These mutations may serve as diagnostic and prognostic markers in T-cell lymphoma patients. Moreover, these mutations are putatively involved in the progression of T-cell lymphoma and may be useful in developing therapeutics targeting FYN kinase.

Targeted therapy: Four activating mutations may lead to the development of FYN inhibitors and predict patient sensitivity.

These four mutations have been identified using high throughput sequencing of peripheral T-cell lymphomas and were validated with DNA sequence chromatograms. They are predicted to result in constitutively active FYN signaling. Thus, inhibition of FYN signaling represents a novel therapeutic target for peripheral T-cell lymphomas. Identification of patients with these mutations may predict sensitivity to FYN inhibitor therapy, providing targeted therapy to patients with the highest chance of responding. Such targeted therapy may provide substantial improvements in efficacy and toxicity over the available chemotherapeutics for this currently intractable disorder.

Lead Inventor:

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Applications:

• Diagnostic marker for patients with adult peripheral T-cell lymphomas.
• Prognostic marker for patients with adult peripheral T-cell lymphomas.
• Development of potent FYN inhibitors as a potential therapy for T-cell lymphomas.
• Biomarker of sensitivity to FYN inhibitor therapy.

Advantages:
• FYN mutations may serve as diagnostic and prognostic markers for T-cell lymphoma.
• Represents novel therapeutic target for adult peripheral T-cell lymphoma.
• Patients that may respond to treatment are identifiable by screening for FYN mutations.
• FYN inhibitors would selectively target constitutively active disease pathway, potentially increasing treatment efficacy.
• FYN inhibitors may permit reduced dosing of other chemotherapeutics, reducing the adverse side effects.

Patent information:
Patent Pending

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