Mutations in RhoA and FYN genes as predictive, diagnostic, and therapeutic targets in peripheral T-cell lymphoma

Technology #cu13221

Peripheral T-cell lymphomas (PTCLs) are a heterogeneous and poorly understood group of aggressive non-Hodgkin lymphomas. Current treatment relies on combination chemotherapy and leaves the patient with a poor prognosis. While early intervention correlates with improved outlook, most PTCLs are diagnosed after presenting with symptoms. There is thus a need for better diagnostic criteria along with alternative treatment options. This technology utilizes whole exome sequencing in patients with PTCL to identify mutations in the epigenetic regulators RhoA and FYN. This serves a method to screen, diagnose and possibly predict the occurrence of PTCL, as well as new therapeutic targets for this aggressive lymphoma.

Microarray and kits to quickly screen biological samples for PTCL

This technology has developed, optimized and validated oligonucleotides for use in a kit and microarray to quickly screen biological samples for the RhoA/FYN mutations. SRC kinase inhibitors and combinations thereof have also been detailed as effective therapies for those identified via the technology. To reach the greatest number of patients, the technology can utilize samples from blood, tumor biopsy, bone marrow and cerebrospinal fluid. Also, as the mutations can be used to predict the likelihood of developing PTCL, the technology can be applied to those at risk of disease (ex. family members of patients) to aid in early identification, diagnosis, and improved outlook.

The technology has been validated using known PTCL samples and confirmed with Sanger sequencing.

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Applications:

- Diagnostic test for PTCL
- Predictive test for PTCL
- Personalized medicine at the genetic level
- High-throughput screen of large populations
- Potential use for developing new and targeted therapies for lymphomas involving SRC kinases

Advantages:

- Validated targets, primers, and methodology
- By facilitating early diagnosis and intervention, the technology is expected to improve outlook for PTCL patients
- Individual kits for use in hospital and clinical setting
- Microarray format for large population screening in epidemiological and basic research

Patent Information:

Patent Pending (WO/2014/197453)

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Related Publications:


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