

High-Throughput Drug Screening of Cancer Stem Cells

This invention discloses methods for designing a personalized therapeutic regimen for patients with AML based on an individual's unique drug sensitivities. The methods offer clinical utility beyond the scope of standard diagnostics and assays and allow clinicians to tailor treatments based on a patient's cancer stem cell chemosensitivity.

What is the Problem?

Acute Myeloid Leukemia (AML) is a cancer of the bone marrow tissue that leads to a high number of annual cases and deaths in the U.S. While current treatments can be initially successful, leukemia stem cells (LSCs) are thought to contribute to high rates of relapse and mortality. There is a lack of accessibility and affordability of LSC drug resistance screening, which prevents the incorporation of this crucial data into the clinical management of AML.

What is the Solution?

The disclosed invention provides methods for developing personalized therapeutic regimens for patients with AML. It offers a high-throughput platform for measuring the susceptibility of leukemia stem cells to commonly used antineoplastic agents. This platform informs the selection of a therapeutic agent with the highest likelihood of achieving deep and durable remission for AML patients, going beyond the scope of standard diagnostics and assays by allowing clinicians to tailor treatments based on a patient's cancer stem cell chemosensitivity.

What is the Competitive Advantage?

The competitive advantage of this innovation lies in its potential to revolutionize the clinical management of AML by providing personalized therapeutic regimens based on patient-specific LSC chemosensitivity. By offering a high-throughput platform to measure LSC susceptibility to antineoplastic agents, the innovation enables clinicians to make more informed decisions about the most effective treatments and reduce unnecessary chemotherapy and its associated toxicity. As the AML market continues to grow, this technology has the potential to make a significant impact by improving treatment outcomes, reducing relapse rates, and enhancing overall patient care.

Technology ID

BDP 7020

Category

Research Tools
Therapeutics/Oncology
Therapeutics/Platform
Technology
Selection of Available
Technologies

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Patent Information:

[US20210285933A1](#)

[WO2020010262A1](#)

References

1. Mabrey, F. L., Chien, S.S., Martins, T.S., Annis, J., Sekizaki, T.S., Dai, J., Beckman, R.A., Loeb, L.A., Carson, A., Patay, B., Blau, C.A., Oehler, V.G., Celik, S.S., Lee, S., Monnat, R.J., Abkowitz, J.L., Appelbaum, F.R., Estey, E.H., Becker, P.S.(2018) ,
<https://ashpublications.org/blood/article/132/Supplement%201/180/272792/High-Throughput-Drug-Screening-of-Leukemia-Stem>, <https://ashpublications.org/blood>, 132, 180