# Use of Androgen Receptor-Mediated Mechanisms in the Treatment of Acute Myeloid Leukemia



### **TECHNOLOGY READINESS LEVEL**

#### 3

## Seeking

Investment | Licensing | Research

#### Keywords

- Acute myeloid leukemia
- Leukemia-initiating stem cells
- Androgen receptor
- DHT
- Antagonis

#### Researchers

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# **Technology Summary**

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Androgen receptor (AR) signaling is increased in acute myeloid leukemia (AML) either through increased expression of AR or increased production of its ligand dihydrotestosterone (DHT). Inhibition of AR signaling with 5-a-reductase inhibitors or with AR antagonists significantly increases survival and reduces leukemia burden in a murine model of AML. The invention proposes to repurpose FDA-approved therapeutics to inhibit the production of DHT, antagonize AR, or a combination of both, to treat AML. Inhibiting AR signaling could be used in combination with standard chemotherapy regimens or as a standalone therapy. This treatment exploits newly discovered targets to treat AML.

# **Application & Market Utility**

AML is a difficult disease to treat. Although, most patients who respond to initial chemotherapy relapse because leukemia-initiating cells (LICs) are resistant to chemotherapy drugs. There is a need for new therapies to target LICs to prevent relapse. The use of AR-targeted therapies represents a new approach to treat AML and preventing relapse and advancing clinical options.

# **Next Steps**

Advancing the use of AR-targeted therapies for AML in the clinic through pre-clinical studies by treating immunocompromised mice transplanted with AML-patient samples. Phase I/II clinical trials using FDA-approved drugs targeting AR-signaling in combination with standard chemotherapy regimens.



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# Leukemia-initiating stem cells in AML