



## RADIOIMMUNOTHERAPY

# Pretargeted Radioimmunotherapy for the Treatment of Acute Myeloid Leukemia

## Brief Description of Technology

An anti-CD45 bispecific antibody delivering targeted radioimmunotherapy to treat acute myeloid leukemia [AML], while avoiding systemic toxicity.

### BUSINESS OPPORTUNITY

Exclusive license  
Sponsored research

### TECHNOLOGY TYPE

Therapeutic  
Hybridoma/Antibody  
Protein/Peptide  
Immuno-oncology

### STAGE OF DEVELOPMENT

Preclinical *in vivo*

### PATENT INFORMATION

Patent pending

### INVESTIGATOR

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### LEARN MORE

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## Technology Overview

Pretargeted radioimmunotherapy [PRIT] is a two-step approach that delivers radioactivity separate from the initial targeting step. CD45 is a great target for PRIT as it is expressed on nearly all hematopoietic cells and negligibly expressed on non-hematopoietic tissues. Therapeutic efficacy was shown in AML previously when targeting CD45 using a streptavidin-biotin PRIT system, however, some expressed concerns, like endogenous biotin. Therefore, Dr. Orozco and colleagues developed a bispecific antibody targeting CD45 and <sup>90</sup>Y-DOTA-biotin that showed survival benefits in two leukemia models. Initial proof-of-concept studies in the syngeneic murine leukemia model showed that mice treated with the murine <sup>90</sup>Y-DOTA-biotin construct had a median survival of 43 days compared to 30 days for the control mice. Then in mice bearing human AML cells (HEL), 60% of the mice treated with the human CD45-<sup>90</sup>Y-DOTA-biotin construct survived 170 days post injection. Untreated controls and non-targeted negative control HEL-bearing mice required euthanasia due to tumor size at day 26 and 32, respectively.

## Applications

- Therapy for AML and other leukemias, myeloma, lymphoma, and other cancers expressing CD45

## Advantages

- Targeted delivery of radiation to tumor minimizing off-target toxicity
- Addresses concerns of immunogenicity and endogenous biotin

## Market Overview

In the US, there will be over 19,500 estimated new cases of AML in 2018 and that number is expected to grow by 2.8% annually over the next decade. The standard of care for AML has been consistent for decades and continues to produce poor outcomes. AML has a five year survival rate of 27%, which decreases with age. Thus, there is a high unmet need for therapies that prolong overall survival for elderly and relapsed/refractory patients.