ANTIBODY-DRUG CONJUGATE

Mesothelin as Unique Target for Antibody-Drug Conjugate use in Acute Myeloid Leukemia

Brief Description of Technology

Creation of an antibody-drug conjugate (ADC) targeting highly expressed mesothelin (MSLN) found in one-third of childhood acute myeloid leukemia (AML) and a subset of young adults.

BUSINESS OPPORTUNITY
Exclusive license
Non-exclusive license
Startup opportunity
Sponsored research

TECHNOLOGY TYPE
Therapeutic

STAGE OF DEVELOPMENT
Preclinical *in vivo*

PATENT INFORMATION
Patent pending

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Technology Overview

Pediatric AML accounts for almost 25% of diagnosed pediatric leukemias, which result in a three-year survival rate of only 70%. Currently, there is a distinct lack of immunotherapeutic AML-specific targets and those targets that are expressed, are found in normal hematopoiesis (e.g., CD33, CD123, etc.). Currently available ADCs result in hematopoietic toxicity and clinical standards of treatment have subpar long-term outcomes. Dr. Meshinchi's team analyzed 1700 children and young adult patients with AML, which led to the identification and subsequent development of a targeted therapeutic of an aberrantly expressed MSLN surface protein. Importantly, MSLN-targeted treatment in an AML cell line had an efficacy equivalent to or superior to extant anti-MSLN therapeutics designed for solid tumor applications.

Applications

- Pediatric AML therapy
- Targeting and treatment of other blood disorders

Advantages

- Expressed in 30-40% of pediatric AML patients
- Readily accessible cell surface protein
- Confers cell selectivity since not expressed in normal hematopoietic cells

Market Overview

The global AML market is predicted to undergo a CAGR of 14% between 2018 and 2024, increasing the estimated value from USD 701.6 million in 2018 to USD 1.539 billion in 2024. The market is divided into two main segments, childhood acute myeloid leukemia and adulthood acute myeloid leukemia. Approximately 15%-20% of children diagnosed with leukemia will have AML and those children under the age of 2 years have a lower chance of remission and cure than older children.