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BIOLOGIC

CD33 Antibodies to Provide Therapeutic Efficacy in Acute Myeloid Leukemia

Brief Description of Technology

Monoclonal anti-CD33 antibodies that bind/recognize the (1) V-set domain of CD33 (including full length) and (2) C2-set domain only in CD33 proteins lacking the V-set domain (e.g., CD33^E2).

BUSINESS OPPORTUNITY
Exclusive license
Sponsored research

TECHNOLOGY TYPE
Antibody
Therapeutic
Research Tool

STAGE OF DEVELOPMENT
Preclinical *in vitro*

PATENT INFORMATION
Patent pending

INVESTIGATOR
Roland Walter, MD, PhD
Colin Correnti, PhD
Clinical Research Division

LEARN MORE
Tech ID: 17-036
partnering@fredhutch.org
206-667-4304

Technology Overview

Each year, 20,000 new cases of acute myeloid leukemia (AML) are diagnosed in the US alone. Full-length CD33 (CD33^FL) is a myeloid differentiation antigen found in almost all patients with AML and is a considered a therapeutic target. CD33^FL includes a V-set domain and a C2-set Ig-like domain, although some variants lack the V-set domain (CD33^E2). Currently available antibodies solely recognize CD33^FL containing the immune dominant set and lack the functionality to recognize CD33^E2. Drs. Walter and Correnti have developed monoclonal anti-CD33 antibodies for the V-set domain and the C2-set domain. These antibodies can be used separately or on in conjunction to direct novel therapeutic targets, and increase therapeutic efficacy against CD33-related disorders (e.g., AML).

Applications

- Leukemia, lymphoma
- CD33-expressing disorders
- Drug conjugates

Advantages

- Binds higher percentage of CD33-expressing cells
- Enhances therapeutic efficacy against CD-33 related disorders through “pan-binding” site

Market Overview

The American Cancer Society estimates that in 2019, there will be approximately 61,780 new cases of leukemia in the US, 21,450 of which will be AML. Of the AML cases, at least 10,920 will result in death. Increasing disease prevalence is expected to push the AML market growth with a CAGR of 14%, predicting a value of USD 1.54 billion by 2024, up from USD 701.6 million in 2018. Key drivers of the anticipated growth include the launch of premium-priced therapies targeting specific driver mutations. Upcoming therapy research areas have demonstrated success using monoclonal antibody conjugates (e.g, gemtuzumab ozogamicin).