Therapeutic Antibodies and their Derivatives to Target the pre-BCR in BCP-ALL

Published date: July 7, 2015

Technology description

A novel therapeutic for B Cell Precursor Acute Lymphoblastic Leukemia (BCP-ALL).
This strategy promotes and protects the adaptive immune system, rather than abrogating its protective effects. Importantly, this approach will spare mature B cells that mediate the adaptive arm of the immune response. This is a particularly important feature of this therapeutic, since patients are highly susceptible to secondary infections during the steroid and chemotherapy phases of treatment.

Background

B Cell Precursor Acute Lymphoblastic Leukemia (BCP-ALL) is a common neoplasm in children and is an aggressive disease in adolescents and young adults. Overall survival for BCP-ALL has gradually improved from 10% in the 1960s to approximately 90% presently. Select subsets of patients, however, appear to have not benefitted from risk-adapted, intensified therapies. Because outcomes for high-risk leukemias appear to have plateaued with conventional therapy, the need for less toxic therapies has become greater. A present need remains for novel therapeutic approaches to help patients with BCP-ALL.

Technology Description

Researchers at the University of New Mexico and Sea Lane Biotechnologies have developed a novel therapeutic for B Cell Precursor Acute Lymphoblastic Leukemia (BCP-ALL). More specifically, this strategy promotes and protects the adaptive immune system, rather than abrogating its protective effects. Importantly, this approach will spare mature B cells that mediate the adaptive arm of the immune response. This is a particularly important feature of this therapeutic, since patients are highly susceptible to secondary infections during the steroid and chemotherapy phases of treatment.

Publications

Dynamic pre-BCR homodimers fine-tune autonomous survival signals in B cell precursor acute lymphoblastic leukemia

Macrophage and NK-mediated killing of precursor-B acute lymphoblastic leukemia cells targeted with a-fucosylated anti-CD19 humanized antibodies
Characterization of the anti-CD22 targeted therapy, moxetumomab pasudotox, for B-cell precursor acute lymphoblastic leukemia

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Application area

Therapeutic for B Cell Precursor Acute Lymphoblastic Leukemia (BCP-ALL)
Targets minimal residual disease (MRD), while protecting mature B cells and therefore favoring a functional immune response to control opportunistic infections that are significant mortality risks in BCP-ALL patients
Development of both peptidomimetic inhibitors and antibody-based approaches as targeted therapies
Possible to recruit healthy immune function in later stages of therapy

Institution

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