# Testing the Addition of the Anti-cancer Drug Venetoclax and/or the Anti-cancer Immunotherapy Blinatumomab to the Usual Chemotherapy Treatment for Infants With Newly Diagnosed KMT2A-rearranged or KMT2A-non-rearranged Leukemia

Status: RECRUITING

## Eligibility Criteria

Sex: ALL
Age: Up to 1 years old
Healthy Volunteers: This study is NOT accepting healthy volunteers
Inclusion Criteria:

- All patients must be enrolled on APEC14B1 and consented to eligibility screening (part A) prior to treatment and enrollment on AALL2321
- Infants (aged 365 days or less) on the date of diagnosis are eligible; infants must be > 36 weeks gestational age (cumulative prenatal and postnatal age must be > 36 weeks) at the time of enrollment
- Patients must have newly diagnosed B-acute lymphoblastic leukemia (B-ALL, 2017 World Health Organization [WHO] classification), also termed B-precursor ALL, or acute leukemia of ambiguous lineage (ALAL), which includes mixed phenotype acute leukemia. For patients with ALAL, the immunophenotype of the leukemia must comprise at least 50% B lineage
    - Diagnostic immunophenotype: Leukemia cells must express CD19

Exclusion Criteria:

- Patients with Down Syndrome
- Patients with secondary B-ALL that developed after treatment of a prior malignancy with cytotoxic chemotherapy
- Patients must not have received any cytotoxic chemotherapy for either the current diagnosis of infant ALL or for any cancer diagnosis prior to the initiation of protocol therapy, with the exception of:
    - Steroid pretreatment:
    - PredniSONE, prednisoLONE, or methylPREDNISolone for ≤ 72 hours (3 days) in the 7 days prior to enrollment. The dose of predniSONE, prednisoLONE or methylPREDNISolone does not affect eligibility
    - Inhaled and topical steroids are not considered pretreatment
    - Note: Pretreatment with dexamethasone in the 28 days prior to initiation of protocol therapy is not allowed with the exception of a single dose of dexamethasone used during or within 6 hours prior to or after sedation to prevent or treat airway edema. However, prior exposure to ANY steroids that occurred > 28 days before enrollment does not affect eligibility
    - Intrathecal cytarabine or methotrexate:
    - An intrathecal dose of cytarabine or methotrexate in the 7 days prior to enrollment does not affect eligibility
    - Note: The preference is to defer the diagnostic lumbar puncture with intrathecal chemotherapy to day 1 of induction to allow for cytoreduction of circulating blasts and decrease the potential for central nervous system (CNS) contamination due to a traumatic tap. If done prior to day 1 of induction, these results will be used to determine CNS status
    - Hydroxyurea:
    - Pretreatment with ≤ 72 hours (3 days) of hydroxyurea in the 7 days prior to enrollment does not affect eligibility
- All patients and/or their parents or legal guardians must sign a written informed consent
- All institutional, Food and Drug Administration (FDA) and National Cancer Institute (NCI) requirements for human studies must be met

## Conditions & Interventions

Interventions:
DRUG: Asparaginase Erwinia chrysanthemi, PROCEDURE: Biospecimen Collection, BIOLOGICAL: Blinatumomab, PROCEDURE: Bone Marrow Aspiration, DRUG: Calaspargase Pegol, PROCEDURE: Computed Tomography, DRUG: Cyclophosphamide, DRUG: Cytarabine, DRUG: Daunorubicin, DRUG: Dexamethasone, DRUG: Doxorubicin, PROCEDURE: Echocardiography Test, PROCEDURE: FDG-Positron Emission Tomography, DRUG: Leucovorin, DRUG: Levoleucovorin, PROCEDURE: Lumbar Puncture, PROCEDURE: Magnetic Resonance Imaging, DRUG: Mercaptopurine, DRUG: Methotrexate, DRUG: Methylprednisolone, PROCEDURE: Multigated Acquisition Scan, DRUG: Prednisolone, DRUG: Prednisone, DRUG: Therapeutic Hydrocortisone, DRUG: Thioguanine, DRUG: Venetoclax, DRUG: Vincristine
Conditions:
Acute Leukemia of Ambiguous Lineage, B Acute Lymphoblastic Leukemia

## More Information

Description:
This phase II trial tests the addition of venetoclax and/or blinatumomab to usual chemotherapy for treating infants with newly diagnosed acute lymphoblastic leukemia (ALL) with a KMT2A gene rearrangement (KMT2A-rearranged \[R\]) or without a KMT2A gene rearrangement (KMT2A-germline \[G\]). Venetoclax is in a class of medications called B-cell lymphoma-2 (Bcl-2) inhibitors. It may stop the growth of cancer cells by blocking Bcl-2, a protein needed for cancer cell survival. Blinatumomab is a monoclonal antibody that may interfere with the ability of cancer cells to grow and spread. Chemotherapy drugs work in different ways to stop the growth of cancer cells, either by killing the cells, by stopping them from dividing, or by stopping them from spreading. Adding venetoclax and/or blinatumomab to standard chemotherapy may be more effective at treating patients with ALL than standard chemotherapy alone, but it may also cause more side effects. This clinical trial evaluates the safety and

effectiveness of adding venetoclax and/or blinatumomab to chemotherapy for the treatment of infants with KMT2A-R or KMT2A-G ALL.

Contact(s): - cancer@cchmc.org
Principal Investigator:
Principal Investigator ID:
Phase: PHASE2
IRB Number:
System ID: NCT06317662

---