A Novel Therapy for Refractory *CBFA2T3::GLIS2*-associated AMKL Using STRO-002 And Plerixafor

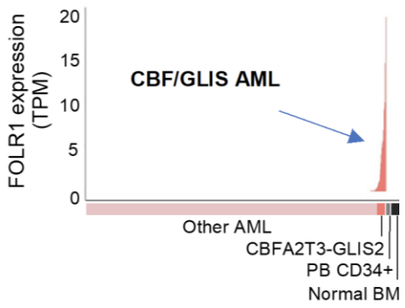
Amy Johnson MD[1]; Alan Gamis MD[1]; Arturo Molina MD, MS[2]; Soheil Meshinchi MD, Ph.D.[3]; Karen Lewing MD[1]

[1]Children's Mercy Hospital, Kansas City, MO, [2]Sutro Biopharma, South San Francisco, CA, [3]Fred Hutchinson Cancer Research Center, Seattle, WA

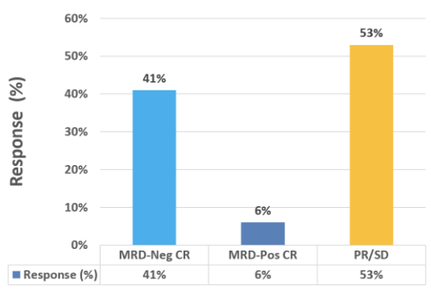
Background:

- *CBFA2T3::GLIS2*-associated AML is an aggressive form of AML with a very poor prognosis with marrow localization of leukemic blasts likely mediated by high CXCR4 (CD184) expression.[1]
- The *CBFA2T3::GLIS2* fusion gene is among the most common oncogenic transcript in pediatric AMKL with high expression of CXCR4. Plerixafor, a reversible CXCR4 antagonist, mobilizes marrow stem cells and leukemic cells.[2]
- STRO-002 is an antibody/drug conjugate targeting FOLR1. A summary of 17 patients with refractory CBRA2T3::GLIS2 AML who received STRO-002 reported significant clinical activity with little to no toxicity.[3]

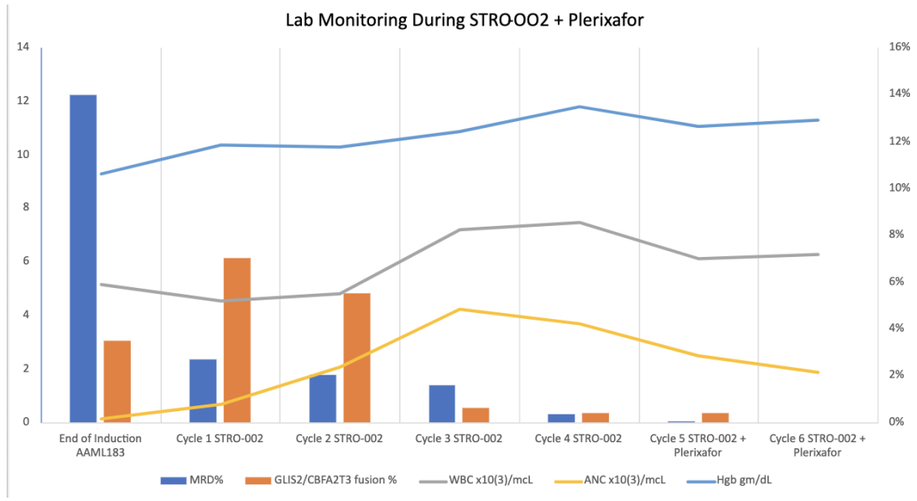
High Expression of FOLR1 in CBFA2T3[3]



17 Patients Overall Response to STRO-002[3]



Case Presentation:



- A 2-year-old female presented with fever, arm pain, and bruising and was diagnosed with RAM phenotype AMKL with FOLR1-positive *CBFA2T3::GLIS2* oncogenic fusion.
- She was enrolled on AAML1831 Arm A but Induction therapy was unsuccessful.
- She was transitioned to STRO-002 monotherapy (4.3mg/kg/dose IV every 2 weeks) as an outpatient for 4 cycles. Bone Marrow was assessed every 2 weeks.
- Plerixafor was added for leukemic cell mobilization with Cycles 5 and 6 (Plerixafor 0.24mg/kg/dose 4h prior and 24h post each STRO-002 dose).
- After Cycle 6, our patient achieved 0% MRD by flow and 0% *CBFA2T3::GLIS2* fusion expression.
- She underwent haploidentical bone marrow transplant, but unfortunately relapsed on Day 100.
- Plan to continue STRO-002 with Plerixafor and Donor Leukocyte Infusions.

Conclusion:

- Our Our patient with refractory *CBFA2T3::GLIS2*-associated AMKL achieved MRD-positive CR with STRO-002 alone and MRD-negative CR when plerixafor was added in combination.
- The treatment was well-tolerated by our patient. This initial report of the STRO- 002-Plerixafor combination supports further evaluation in similar patients.

References:

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3. Meshinchi, S. (2022, December 10-13). *Anti-Leukemic Activity of STRO-002, a Novel Folate Receptor-α (FR-α)-Targeting ADC in Relapsed/Refractory CBFA2T3::GLIS2 AML*. 64th ASH Annual Meeting and Exposition.

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