Phase 1 First-In-Human Trial of AMV564, a Bivalent Bispecific (2:2) CD33/CD3 T-Cell Engager, in Patients with Relapsed/Refractory Acute Myeloid Leukemia (AML)

AMV564 is a novel bivalent, bispecific (2:2) CD33/CD3 T-cell engager that binds CD33 on leukemic blasts and other CD33-expressing cells and the invariant CD3ε on the T-cell receptor creating an immune synapse that results in T-cell directed lysis of CD33-expressing cells and T-cell activation and proliferation. AMV564 is broadly active with picomolar potency and is independent of cytogenetic or molecular abnormalities, CD33 expression level and disease stage, based on preclinical studies with AML patient samples (Reusch et al. 2016). AMV564 is well-tolerated in AML patients and demonstrates single-agent anti-leukemic activity through T-cell engagement.

**AMV564**

**MECHANISM OF ACTION**

- CD33 Target Cell
- Highly specific CD33 target cell killing
  - Activation
  - Cytokine release
  - Proliferation
  - Differentiation

**MECHANISM OF ACTION**

- T Cell
- Targeted to CD3 and CD33

**STUDY DESIGN**

- 3+3 DESIGN
  - 14 Day Continuous Infusion
  - 500 mcg
  - 400 mcg
  - 300 mcg
  - 150 mcg
  - 100 mcg
  - 75 mcg
  - 50 mcg
  - 35 mcg

**PHARMACOKINETICS**

- Terminal half-life of 2 days

**SAFETY**

- No Dose Limiting Toxicities through 150 mcg
  - No related Grade 3+ adverse events including cytokine release syndrome (CRS)
  - 0% 30-day mortality
  - Repeat cycles also well tolerated

**Cytokine Release Syndrome**

- No Grade 3+ CRS
- No Grade 2+ CRS with Lead Dose Strategy

**CONCLUSIONS**

- Safe and Well Tolerated
- Novel Pharmacokinetic Profile
- Single Agent Activity in Relapsed/Refractory AML

**REFERENCES**