NK BIO | Novel Cell-Based Cancer Therapies

NK Bioscience Research Inc.

Novel Cell-Based Therapies Treating Solid Tumors

NK Bioscience is an early-stage company developing novel NK cell-based therapies for the treatment of solid tumors. The NK cells developed by us continue to grow and kill metastatic tumor cells in the presence of high levels of immunosuppressive factors.

The Unmet Need

Solid tumors present severe obstacles to treatment. They are resistant to existing therapies, are located in several organs through metastatic progression, and have powerful immunosuppressive capabilities. Through evasion of the immune system, particularly the inactivation of tumor-infiltrating lymphocytes, such as T cells, and through inactivation of NK-cells, tumors prevent the immune system from normal function.

NK Bioscience's approach

Our observations show that, in cell culture, normal NK-cells kill melanoma cells due to the lack of immunosuppressant factors. However, when we add those factors to the medium, normal NK-cells are completely inactive against the melanoma cells.

NK Bioscience has engineered human NK-cells that survive and grow in the presence of the major, known immunosuppressants. In high concentrations of those factors, the engineered NK-cells continue to kill human melanoma cells. Their activity is restored to levels equivalent to those of normal NK-cells in medium alone.

Current Development Status

- NK Bioscience has created several cell lines that are active against solid tumors in the presence of high levels of immunosuppressant factors.
- We have studied the growth of those cell lines under conditions where normal NK cells are inactivated
- The company has applied for patent protection for our proprietary cell lines.

Competitive Advantage

Efforts to get around immunosuppression by the creation of CAR-NK therapies, by inhibitors of IDO, an enzyme that creates kynurenine, one of the factors which inactivates NK-cells, and by attempts to create effective inhibitors of TGF B, a cytokine that also inactivates immune response, or by creating "stimulated" NK-cells, have all met with very limited success alone, or in combination with other therapies. Especially with aggressive tumors, these efforts cannot recharge the tumor-killing activity of NK-cells. Tumors have several methods of suppressing the immune system, so any single approach is not likely to meet with success.

Our advantage is that NK Bio-engineered NK-cells are impervious to the immunosuppressive ability of solid tumors to inactivate them. They continue to kill tumor cells under conditions that completely inhibit normal NK-cells.

Business Model and Financing

NK Bioscience needs seed investment to continue prosecuting the patent, hire staff and conduct the necessary experimental work. We need to establish our own facilities. To date, we have been using shared facilities at the Life Sciences Innovation Hub at the University of Calgary campus. In 2025, over about seven months, we have created the cell lines and need financial support to extend those studies in the following ways:

- Extend studies to other tumor cell lines and demonstrate lack of activity against normal cells
- Characterize the engineered NK-cells fully
- Conduct studies against tumor organoids (3-dimensional tumors) in vitro and implanted tumors in mice
- Continue to pursue patent protection

We expect to complete studies in six to nine months, and following that, we will be raising a Series A investment to conduct preclinical and Phase 1/2A clinical trials. Our strategy is to seek marketing partnerships or acquisitions following success in Phase 1/2A trials.